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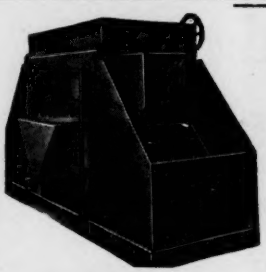

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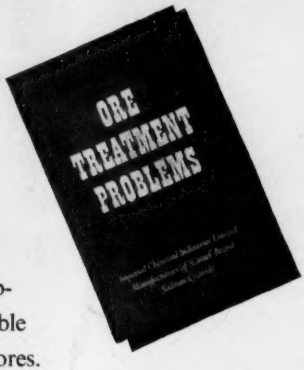

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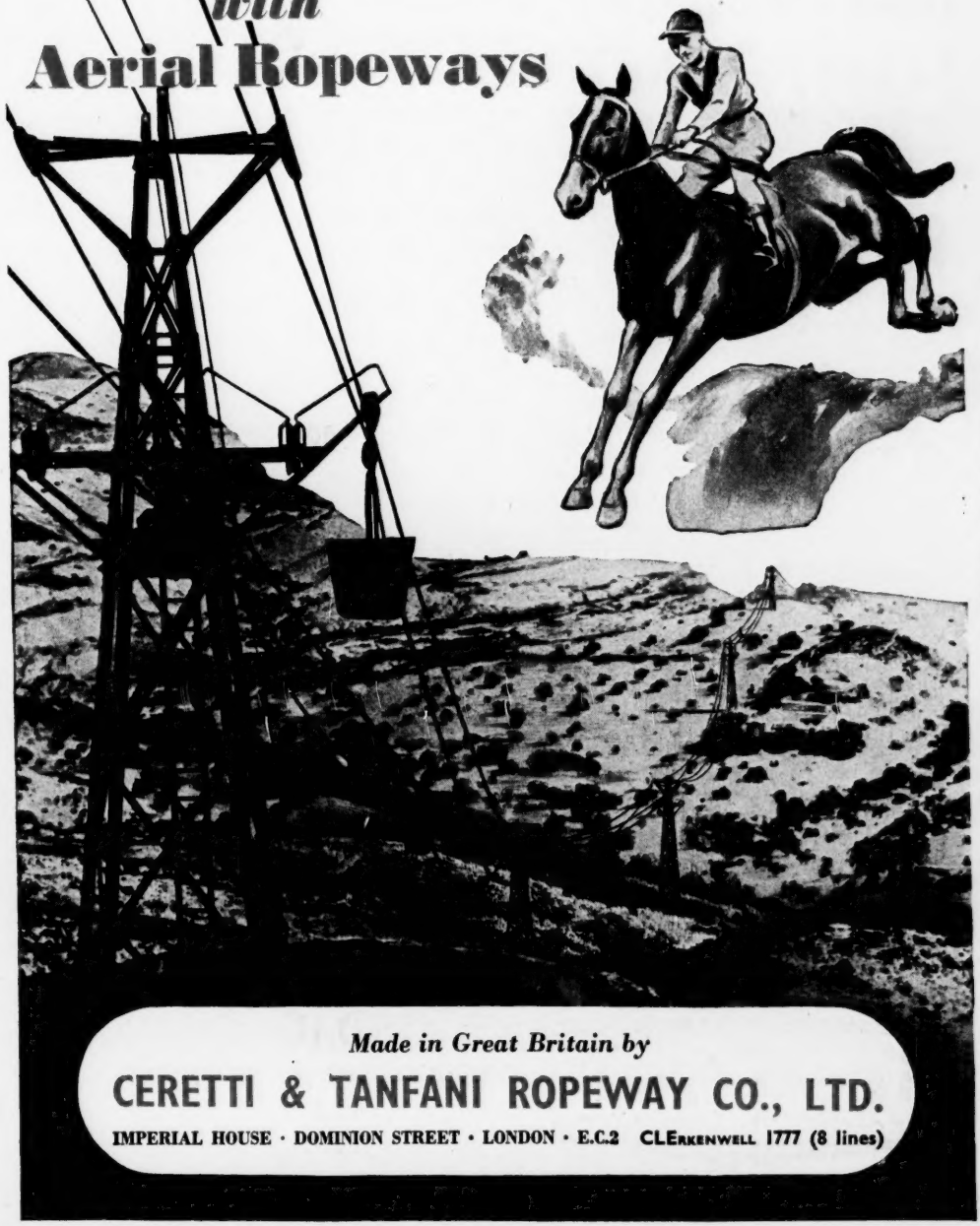

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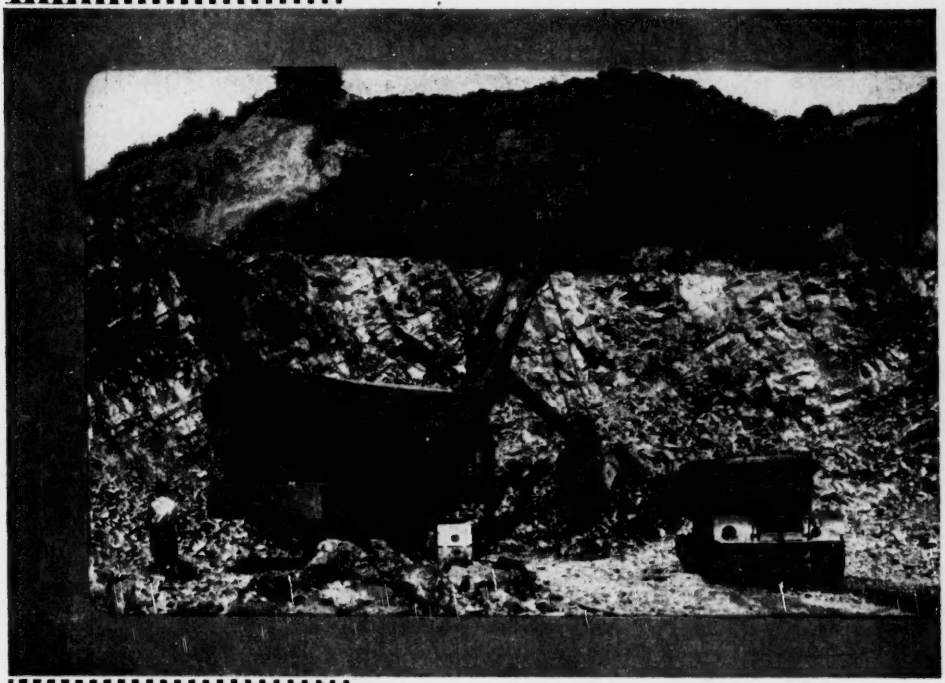

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CONTENTS

Notes and Comments	433	Company News and Views	446
From our Canadian Correspondent	435	Canadian Gold Producers' Dates for Free Market Sales; Sub Nigel's Results; Anglo-Vaal Agreement with SASOL; Amalgamated Tin's Heavy Tax Burden; Beralt Tin and Wolfram's Excellent Results	
Security and Shortages	436	Company Shorts	447
Flotation of Diamonds	438	Topical News in Brief	448
Southern Rhodesia Mining	439	Company Meetings and Announcements	448
Two Nordberg Screens—the Symons Hydro-Sizer and Symons Rod Deck	440	Tronoh Mines; National Mining Corporation; Rosterman Gold Mines; Anglo-Transvaal Consolidated Investment Co.	
Technical Briefs	441		
Metals, Minerals and Alloys	442		
Mining Men and Matters	444		
The Mining Markets	445		

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NOTES AND COMMENTS

The Right Road

Deplore as we may the outcome of the General Election which denies the prospect of a strong and stable Government equipped with the necessary authority to formulate and apply those drastic measures which alone will ensure a rapid advance along the road to recovery, it was a source of satisfaction to observe that in the hour of victory Mr. Churchill, with unerring political instinct, made an appeal for a cessation of party strife and the greatest common measure of co-operation in the immense tasks with which the nation is confronted.

Is it possible to achieve a political cease fire and the concentration of all our resources, physical and intellectual, upon the mighty battle for economic survival? The query is not raised in a spirit of impractical idealism. Long before polling day Mr. Churchill promised to do his best for all "without fear or favour, without class or party bias, without rancour or spite, but with the clear and faithful simplicity which we showed in the days of Dunkirk." Much in the same spirit Sir Hartley Shawcross responded with the affirmation that "We shall have to take a turn at the oars, loyally carrying out the commands . . . because all of us remain in the same boat—our country that we love." It may be even more significant that Mr. Arthur Deakin, the Chairman of the T.U.C., has given an indication that the organized workers will not remain sulking in their tents. "We have got to work with Governments. We will face our responsibilities." If that be the mood of the trade unions the prospect of recovery is bright with promise.

The elimination of waste, the encouragement of efficiency, and higher productivity have been as fervently advocated by Labour front benchers as by the spokesmen of the Conservative Party, but few if any have had the courage to point out, as Mr. Geoffrey Crowther, the distinguished editor of the *Economist* has done, that the practical implementation of such a policy must involve the restoration of some of the sanctions against inefficiency, the greater reward of efficiency and the creation of "a healthy apprehension by the worker that something unpleasant would happen if he did not do his job properly"—in short that hard times can only be avoided by hard work.

It is a strange anomaly that the two major commodities in shortest supply at the present moment are steel and coal. Last year we eclipsed all past records in steel production. This year though productive capacity has been considerably increased, the output has steadily declined, and in consequence imports have had to be curtailed and vital industries such as the motor trade, engineering and shipbuilding have been slowed down. To some extent the shortage of steel production has been precipitated by the inadequacy of supplies of ore and scrap. But the ore shortage has been overcome, and if a sufficiency were available pig iron could be substituted for scrap in the furnace charges.

For the steel works, as for so many other industries, the intractable problem is coal. With almost limitless supplies beneath our feet we have ignominiously failed to raise sufficient for our own needs during the post-war years. Winter coal stocks are below the target level, and already the first American "Liberty" ship has been chartered to import coal from Calcutta at a freight charge of 110s. per ton.

One of the first tasks to be undertaken by the new administration must be to devise ways and means of producing more coal. If they can succeed in this most of our economic ills can be speedily overcome, and the first beneficiaries would be the steel and the steel consuming industries.

But the non-ferrous metals industry also has its problems which, if volumetrically less serious than coal and steel, are not less vital to the industrial activity of the country and especially to the re-armament programme. The Ministry of Supply may have had a fundamental policy, but in the absence of any authoritative statement of fundamental principle, dealers and consumers have been left to draw their own inferences from regulations and directives which sometimes seemed to suggest administrative improvisations and expedients rather than a fully integrated and consistent plan. Mr. Churchill and his team have frequently criticized the policy of closing the normal apparatus of trade and national produce exchanges, and

business generally will hope for a relaxation of these clogs on individual effort and efficiency. Results hardly appear to have justified the closing of great exchanges like the Metal and Cotton Exchanges, and the monopoly of bulk buying by Government is generally regarded as extravagant and less efficient than the *media* which experience had built up. The attempt to control financial business and arbitrarily limit dividends while encouraging the formulation of ever increasing wage demands, seems not merely inconsistent, but repressive of all initiative and individual efficiency. How the new Government will meet these problems we shall only learn as time proceeds, but they may be summed up in the conception of a gradual restoration of a freer national economy, under which for over a century Britain has grown and prospered.

A World Iron and Steel Famine

While much less has been heard of iron and steel shortages than of those of most of the industrial base metals, the outlook for world supplies of iron and steel is becoming no less serious, and may deteriorate still further. Though the United States' output has for a considerable time stood at around 102 per cent of rated capacity, a critical period in the industry is now approaching, as negotiations for a new contract between the steel companies and the C.I.O. union are due to start at the beginning of next month, in which labour will ask for increased pay and other benefits, in face of which the chairman of the Bethlehem Steel Corporation, Mr. G. Grace, has stated that his company has no offer to make, and presumably the attitude of the United States Steel Company will be similar. Already supplies for civilian requirements have been widely cut, especially in the case of the automobile industry, while the shipbuilding, oil and gas industries are also suffering, and there are intimations that supplies of material for shipbuilding will be further cut down. Moreover, in the United States, as in almost all other steel-making countries, the supply of scrap has showed little response to the strenuous efforts made to increase it. It may be as Mr. Grace contends-that with the enlargements in capacity that will be available in the coming year, over-production may become a fact before the end of the twelve-months period, and he is doubtful if the national economy can support 120,000,000 tons of steel a year which is the capacity scheduled to be available in 1953. Anyhow, supplies available are expected to contract considerably during the earlier months of next year. Should a protracted strike unfortunately occur over the new contracts, this scarcity may become serious.

Here at home, 1951 production will probably fall considerably short of the 1950 figure and without a better supply of fuel cannot be expected to improve substantially. Moreover, the Government's resolve to denationalize the entire industry suggests that the process of reconversion may temporarily hamper expansion. In Australia, the Broken Hill Proprietary's works at Newcastle have been stopped by a strike of some of the coal-oven men following the management's refusal that coke output should be limited. Mr. Justice Webb, of the New South Wales Industrial Commission, has ordered the striking iron workers and engine drivers to return to work after which the Commission will hear evidence regarding the dispute with the coke-oven men. The shortage of iron has already severely crippled industry in Australia. In Japan, the National Federation of Iron and Steel workers have voted for a general strike, if the several branches of the industry approve. Shortage of scrap is seriously affecting Sweden. In addition to these various troubles, labour relations in France and Belgium are none too comfortable. Moreover, it must be remembered that the world re-armament programme is very far from having reached its projected rate of absorption.

Developments in Rand Mining Practice

We have recently received the Report of the South African Government Mining Engineer for the year 1949, and presented to the Minister of Mines at the end of 1950. This long delay in publication makes most of the report of value only for purposes of record, but it contains notes on the development in mining practice which are more or less of general interest.

On the Witwatersrand, mining methods in most cases have not undergone spectacular changes and the various methods now employed have proved reasonably satisfactory and, consequently, no extensive changes have occurred.

As regard shaft pillar extraction, the lessons learned in 1937 when the shaft pillar at Modderfontein Deep Levels was mined out have since been used with profit on numerous occasions in the successful mining of both vertical and incline shaft pillars. In fact, so far from providing headline news, shaft pillar extraction has almost become a prosaic and well controlled operation, but it is, nevertheless, interesting to note that during the extraction of one of the vertical shaft pillars at New Modderfontein Gold Mining Co., Ltd., mining occurred on no less than seven different reef horizons.

During the extraction of an 800 ft. diameter shaft pillar at New State Areas, Ltd., work proceeded so rapidly that in eight months the stope faces had advanced 300 ft. from the shaft and, at the end of ten months, 81 per cent of the pillar had been extracted. During the peak period, which was from the fifth to the eighth month, the tonnage broken increased from over 11,000 tons to over 16,000 tons per month and the average advance for all stope faces was 25.5 ft. per month. The average stoping width was 47 in. and 4 ft. by 4 ft. waste filled, nine pointer packs, 6 ft. apart on strike and dip, were erected for support. The total amount of sag, as indicated by the movement of the shaft station sets, was 36 in. at the year end and the rate of closure, as measured by pegs within 20 ft. of the shaft, was approximately 1.1 in. per week during the first five months after which they become inaccessible.

On many East Rand mines, the distances to be travelled from the shafts to the working places are rapidly increasing and in most cases transport facilities are provided for Europeans only. The realization that the time wasted in travelling by foot and the resultant fatigue are factors which adversely affect output has caused some managements to face the expenditure involved in providing adequate transport facilities for all personnel. The schemes already completed have fast moving trains capable of conveying between 600 and 700 persons at a time and a few other similar schemes are projected.

A new trend is observable in electrically driven winding plant. Electrically operated winding plants on the mines are driven either by D.C. motors on the Ward Leonard system or by three-phase slip ring induction motors. The latter arrangement is by far the most common for the main reason of lower capital outlay, but the most serious drawback is its lack of an economical electric brake which could in any way compare with that possessed by the Ward Leonard Winder. Recent developments, although not new in principle, have enabled the introduction of economical controlled braking at all speeds down to approximately 5 per cent of full load speed.

Briefly, the system, known as the direct current dynamic braking of A.C. winders, consists in introducing a steady D.C. current to one phase of the stator of the winding motor, connecting the slip rings to an external resistance and finally rectifying and introducing a portion of the rotor current into two phases of the stator of the winding motor. Thus, the motor, when driven by the descending load, is converted into a self-compensated alternator and, while acting as such, the load, and consequently its braking torque, can be altered at will by the driver within the

capacity of the motor. Braking on the three-phase winder becomes economical, reliable and effective with rugged and comparatively inexpensive apparatus and because of the appreciably lower initial and maintenance costs, its large scale introduction seems likely.

In the field of mechanization, the possibility of advancing development ends at a very high speed has been satisfactorily demonstrated, but it has also been shown that it is a costly business which can only be justified in particular cases. It has, however, indicated that mechanical loaders are an effective means of removing broken rock at the face and there are already an increasing number of these units in use. The scraper continues to find favour, but it is a prolific source of injurious dust, unless carefully operated. Experiments are still in progress in regard to "air-legs" on jackhammer drilling machines to assist the operator by taking some of the weight of the machine.

Canada

(From Our Own Correspondent)

Rouyn, October 22

A new copper-gold producing mine is to be established in the northern part of Quebec in the Chibougamau district. The property, Opemiska Copper (Quebec) Ltd., was developed prior to 1937 at which time ore reserves of 283,000 tons were placed in sight through a three-compartment shaft put down to 550 ft. in depth. Work was suspended in 1937 due to absence of suitable transportation at that time. However, transportation has now been established. This, together with the strong demand for copper, has induced the company to carry out financing necessary to bring the mine into production. Opemiska Copper is controlled by Hoyle Mining Co. which in turn is controlled by Ventures Ltd. The ore in sight carries an average of nine per cent copper and approximately $6 per ton in gold for a gross metal content of over $40 to the ton or an aggregate of close to $12,000,000. The indications are that ore resources will be found to extend well beyond present visible limits accordingly as further development proceeds both laterally and vertically.

REVIVING ACTIVITY IN THE COBALT-GOWGANDA AREA

Attempts to revive activity in the Cobalt-Gowganda silver and cobalt area has so far resulted in production being established at a rate of about 245,000 oz. of silver monthly and some 30,000 lb. of cobalt per month.

Overlooked in the heyday of mining the rich native silver veins of cobalt, and situated right in the heart of the field, is a deposit of base metals. This has been disclosed on the old Foster property of Penn-Cobalt Silver Mines. Preliminary work has indicated some 300,000 tons of ore. The deposit is 10 ft. in width and has been explored over a length of 750 ft. and to a depth of 450 ft. The ore carries 3 per cent zinc, 1½ per cent lead, ½ per cent copper and 0.75 oz. silver to the ton. It has been officially estimated that smelter returns will reach $12 per ton net after railway charges. Further continuity of the deposit is indicated both laterally and vertically.

Asbestos production from mines in Quebec rose to 636,408 tons during the first eight months of 1951 compared with 518,519 tons in the corresponding period of 1950.

In British Columbia, widespread interest is being centred on the old Slocan mineral area. In earlier years the Slocan field was famous for its production of silver. Little interest was drawn to the zinc content of the deposits for the reason that at that time zinc was regarded more as a hindrance than a thing of value. Now, however, with zinc in big demand, the entire Slocan district has become a field of hurried activity. Already three new producers of zinc have been established this year each with a capacity of 100 to 200 tons of ore daily. The Slocan district embraces an area of 20 by 25 miles and is located about 25 miles north of the city of Nelson. Some of the more optimistic visitors to the area are expressing a belief that the rewards to be won through mining for zinc and other base metals may ultimately prove to be as great as were the precious-metal mining days in the latter part of the past century and the early part of the present century, when silver bullion was the sought-for prize.

FALCONBRIDGE NICKEL EXPANSION

Falconbridge Nickel Mines is expanding operations at a record rate. Output of nickel this year should reach over 26,000,000 lb. This is to rise above 28,000,000 lb. in the coming year, with an objective of 30,000,000 lb. in 1953. In conjunction with this, three new shafts are being sunk. In order to accommodate this increase in production, the company is enlarging its nickel refinery in Norway—designed to refine 30,000,000 lb. of nickel annually as well as 15,000,00 lb. of copper. The company is also establishing a new plant at Kristiansand, Norway, for the recovery of cobalt. Any question of erecting a nickel refinery in Canada for handling matte from Falconbridge appears to have been left in abeyance for the present, and seems likely to remain so unless threats of war might revive the possibility for reasons of security.

GOLD PRODUCERS AND I.M.F. DECISION

Producers of gold in Canada, now that they have the right to sell gold to the highest bidder, are feeling their way cautiously into the world market. This freedom of action came as a result of the International Monetary Fund deciding to allow all producing countries to sell up to 100 per cent of their output for "industrial, artistic, and professional" uses. Just how this is to be proceeded with in Canada is still under study. The outlook is that a statement may be forthcoming from the Canadian Minister of Finance within the next few days. Generally speaking, however, gold producers in Canada believe the gate is being thrown open to the roadway along which the precious yellow metal will seek out and gradually find a price more in keeping with the cost of production. The view is frequently heard that if gold was worth $35 an ounce as compared with the price of commodities 15 years ago, the yellow metal should have a value of $60 an ounce in relation to the price of commodities at the present time. Output of gold in Canada is at current rate of about 345,000 ounces per month. This has been very uniform during the past twelve months. Nevertheless, should world prices for the metal rise substantially, many of the mines are in a position to increase production at comparatively short notice. Many of the larger mines have milling plants running well below rated capacity.

About 40 miles of the 340-mile railway in course of construction into the iron ranges of the Ungava district of Quebec have been completed. This new railway will run from September Isles on the Gulf of St. Lawrence and will involve expenditure of $100,000,000. This is in addition to investments of $225,000,000 required to bring the iron mines into production.

Quebec Titanium Co., subsidiary of Kennecott Copper Corp., has built 25 miles of railway from Havre St. Pierre, on the north shore of the Gulf of St. Lawrence, to Lake Allard. Initial investment in this titanium project will reach $40,000,000. Also, refining facilities are being established at Sorel.

Asbestos Corporation plans to spend $14,000,000 on improvement and expansion of its Asbestos, Quebec, plant.

Security and Shortages

An important synthesis of the problems of world supply and requirements which has been largely determinative of the United States policy of stockpiling and the regulation of supplies to industry is afforded by an address delivered to the Boston conference on distribution by Mr. Willard L. Thorpe, U.S. Assistant Secretary of State for Economic Affairs, on October 16. Hitherto we have learnt of specific measures adopted by the United States administration in relation to various commodities, particularly metals and minerals, without the key of the general governing plan and objective, lacking which these measures have seemed sometimes arbitrary, and even contradictory. The text of Mr. Thorpe's statement is as follows:

In recent years, the world's capacity to manufacture has expanded more rapidly than the supply of raw materials. Probably the rapid increase in industrial production in this country and in Western Europe in 1950 by itself alone would have put substantial pressure on the raw material markets. As an added element, the United States Government was active in 1950 in many markets in building up its stockpile of strategic materials. When to these was added the recognition of the fact that enormous quantities of raw materials would be required to implement the armament programme, a fact which had an exaggerated effect on the situation by encouraging speculation, the raw material markets reacted immediately and prices skyrocketed. For some commodities, even where prices did not rise substantially as in the case of sulphur, the deficit situation was reflected in the inability of prospective purchasers to locate any available supply.

This situation held a serious threat to all industrial economies where actual shortage could lead directly to serious disruption of production. In many instances, a number of different raw materials must be combined into a final product, and the lack of any one of them could stop the flow of the finished product. Furthermore, the problem is not only one of supply but also of price. The tremendous advance in raw material prices could not help but disturb economies where price structures and wage levels often were in rather uncertain balance. For some countries, largely producers of raw materials, the high prices might well prove to be a "bonanza," creating difficult problems of financial discipline often associated with the sudden attaining of unexpected wealth. In other countries, large consumers of imported raw materials whose prices had gone up much more than those of the manufactured goods which they sold abroad, the difficulty of meeting their foreign payments again became serious.

EQUATING DEMAND AND SUPPLY

To put the problem in economic terms, it was simply that the demand for raw materials caused by increasing production of civilian goods plus expanding rearmament programmes exceeded the supply of those materials, and the inevitable result was a rapid increase in price. In some instances, prices have declined in recent months as the original speculative outburst wore off, and as other adjustments in demand or supply have been made, but in general, raw material prices are still above other elements in general price levels. The problem of raw materials, both supply and price, has become a major preoccupation of top officials in every government, because it not only affects the health of their civilian economies, but can prove to be a limiting factor to even the most energetic efforts to build up their military structures.

In the United States the raw material problem has been approached in a number of ways. The first has been to endeavour to cut back the demand. To some extent this has been done by efforts to reduce the dollars in the hands of purchasers, through various anti-inflation measures. Furthermore, the problem has been attacked directly by limitations in the use of materials in short supply. The Defence Production Authority has required the limitation or reduction in the rate of production for civilian consumption of many less essential products in order to reduce the requirements of scarce raw materials. Some non-essential uses have been forbidden, and in other cases limits have been placed on the total permissible production of finished products. In the case of certain basic materials, such as steel, copper and aluminium, the government is now allocating the supply among producers, thus cutting back on many uses and also, indirectly, limiting the consumption of other materials not directly controlled. Finally, in some instances, such as rubber, tin and tungsten, which come largely from abroad, the government is doing all the buying and therefore is able to control use within the American economy by its control over distribution.

Not only are steps being taken to cut back requirements, but steps are also being taken to increase the supply. In the case of rubber, the war-built synthetic rubber plants are being brought back into full operation; in the case of cotton, the Department of Agriculture successfully set a greatly increased acreage goal; expansion projects for sulphur are promising. Special inducements have been offered to producers who might otherwise be unwilling to expand their production under the present price ceilings, through accelerated tax amortization, direct loans, loan guarantees, long-term procurement contracts and standby purchase commitments.

Efforts are being made to increase foreign raw material production through E.C.A. projects, Export-Import Bank loans and long-term supply contracts. For example, credit has been extended to projects to produce manganese in Brazil, tungsten in Argentina and Peru, and sulphur in Argentina and Mexico. In addition, exploration has been assisted in instances such as manganese, lead and zinc in Greece; tungsten in Portugal; copper, lead and zinc in the Belgian Congo; chrome in Turkey and New Caledonia; industrial diamonds in British Guiana and French Morocco; and columbite in Norway and British Guiana. This encouragement of exploration parallels efforts in this country. The government has offered to pay from 50 to 90 per cent of the cost of prospecting for 28 different minerals, 700 applications have been received, and a number of promising projects have already been approved.

PROBLEMS WHEN STOCKPILES ARE COMPLETED

Another serious problem that cannot be overlooked, because it affects the attitude of foreign producing countries, is the possibility of surplus production of certain raw materials when our stockpile programmes have been completed. In some cases, the United States stockpile demand represents the difference between scarcity and a fairly good balance of supply on the one hand and world requirements on the other. For this reason, producers of some commodities are reluctant to invest capital to expand their productive facilities unless they have assurance of larger United States demand than in the past. By thus reducing the effective demand and increasing the supply as much as possible, the pressures on the markets have been considerably reduced, the necessary raw materials have been made available for the rearmament programme and the maintenance of price ceilings has been possible.

However, the problem of raw materials is not one faced alone by the United States. There are some strategic materials in which we are self-sufficient such as molybdenum, sulphur, and phosphate rock. On the other hand, there are other products which we obtain entirely from abroad, such as quartz crystals, industrial diamonds, tin,

nickel, long fibre asbestos, and strategic mica. There are still many other products where more than a third of our supply is imported, such as copper, lead, zinc, and tungsten. Other countries, of course, have different geological resources, but all face the same problem of dependence for much of their requirements upon sources outside their own control. Normally, we all compete in the world markets for these materials. In the face of limited supplies and high prices, many other countries have taken steps closely paralleling our own. The British have restricted the use of scarce commodities to various percentages of 1949 or 1950 use. In many other countries government purchasing has given the government means of restricting less essential uses.

INTERNATIONAL MATERIALS CONFERENCE

However, the world requirements still exceed the world supply and in such a situation of shortage no amount of domestic stabilization on our part could prevent the skyrocketing of world prices if other countries went into the market vigorously. It therefore became apparent last autumn that international action was necessary, and the United States, the United Kingdom and France set out to organize some international machinery. This led to the setting up of what is known as the International Materials Conference. The Conference has a central group with ten members, namely: Australia, Brazil, Canada, France, India, Italy, the United Kingdom, the United States, and representatives of the Organization of American States (O.A.S.), and of the Organization of European Economic Co-operation (O.E.E.C.). This group provides geographical representation as well as that of producer and consumer countries. The central group is responsible for initiating action in connection with any commodities where its members feel that international consideration would be helpful.

The form which action has taken has been to set up specific commodity committees whose members are representatives of the leading producing and consuming countries in the free world of the particular commodity to be considered, usually about a dozen countries in all. Neither the central group nor the commodity committees have any charter or by-laws, but they are merely a group of responsible government representatives gathered together to consider with each other what can be done to deal with whatever seem to be the immediate problems for their particular commodity. There are now seven committees dealing with the following groups of commodities: copper, lead and zinc; cotton and cotton linters; manganese; nickel and cobalt; molybdenum and tungsten; pulp and paper; sulphur; and wool.

These committees have no powers except to make recommendations to governments. Therefore, the solutions which are devised must be so reasonable and equitable as to command acceptance. Up to the present time, technicians have been sent to Washington by almost 30 countries to participate on one or another committee, and they have been at work for some months. Each committee has made a survey of world requirements and supply. It has listened to suggestions and received information from representatives of non-member countries who wished to appear. Already agreed recommendations have been developed for the conservation of tungsten, molybdenum, manganese, cobalt, nickel, and copper. The process of meeting together has also stimulated technological improvement, *i.e.*, as a result of the discussions, French experts have visited this country to learn about boron steel. In turn, French experts have made useful suggestions to reduce the sulphuric acid requirement in fertilizer production.

Already there has been specific international action in eight particular cases. Tungsten and molybdenum are metals of particular importance in making heat-resistant steel. There is no doubt but that present world production is far short of present world demand. What the international committee has done, beyond developing recommendations for conservation, is to estimate the available supply and then recommend to governments the fair distribution of this supply among the various consumer countries for the third quarter of this year. The governments concerned have accepted the recommendations of the committee. Furthermore, with one exception they have agreed that the prices shall not exceed those which have been the ceiling prices in the United States.

SULPHUR

The third case, that of sulphur, is one in which the United States is the chief producer and the demands by various countries for American sulphur have far exceeded our ability to supply. What the commodity committee has done is to develop a fair basis for distributing sulphur among the various countries, thus relieving the United States of what would have been an exceedingly difficult problem, and a type of problem hardly calculated to create friends. In the fourth case, that of paper and pulp, the committee has already agreed upon emergency allocation of newsprint to take care of special shortage situations in some 15 countries.

More recently, the committee dealing with copper, lead and zinc has made recommendations, and obtained agreement from the materially-affected governments, on allocation proposals covering the distribution of copper and zinc in the fourth quarter of this year. Another committee has successfully concluded arrangements for allocation of cobalt and nickel for the same period.

The cotton committee, which was originally formed because of the world cotton shortage that preceded the 1951 crop, has decided that the supply situation at present is not stringent and will review the situation later. The wool committee reached the conclusion that it would be impossible to obtain agreement from governments at present, but also decided to re-examine the situation at a later date.

During the last war the problem of the equitable allocation of raw materials was handled by a board with only two members—the United States and the United Kingdom—and the decisions which were reached were effectively enforced through the control of the world's shipping. Today, there is no such sanction and one must rely on international co-operation. It is to me a most encouraging sign that the International Materials Conference is working so busily and so well on an entirely voluntary and co-operative basis.

In general, the policy of the United States is that we are willing to participate with others in the process of sharing where sharing is needed. We place armament and essential civilian requirements first, both at home and abroad. In terms of our immediate national interest, we need a programme of international co-operation, for we import many more essential materials than we export. In fact, there are 70 commodities in the list of our strategic requirements which come wholly or partly from foreign sources. More important, however, is our basic desire to build strength in the free world, and that requires the most effective and efficient use of the deficit commodities throughout the world.

PRICE LEVEL PROBLEM

I have discussed the adjustments which are being made in the supply and demand aspect of these commodities because that is the basic answer to the problem of efficient utilization and also to our hopes of achieving price stabilization. However, there is another set of problems which arise directly in the price field. I have already discussed the combination of circumstances which drove raw material prices up so rapidly—active civilian demand,

armament demand, stockpile purchases, and speculative buying. We made a valiant effort to stop further price advances when price ceilings for transactions in the United States were established at the levels of the beginning of this year. But this, of course, did not control prices in other countries, and for many commodities, the world price-level advanced still further. This meant that sellers were likely to sell to purchasers in other countries wherever possible rather than to American buyers. The United States copper ceiling was 24½c., but the world market price was nearer 30c. and sales have been reported at levels as high as 50c. The dilemma thus created is a real one. Either American buyers are unable to purchase in foreign markets, or the price ceilings on imports must be raised with the effect of weakening the entire effort to stabilize. Therefore, we have a real interest in the price levels of other countries. In one instance, we have forced a major reduction in price, that of tin, by simply staying out of the market. Obviously that is not a long-term solution.

This problem of domestic v. world prices has been met in a number of ways. Many imported products, particularly consumers' goods, are allowed to come in with only the American additions to the foreign export price being under ceiling control. For some raw materials which must be obtained abroad, where their use is limited and specialized, and where they constitute a very small part of the cost of finished goods, the ceilings have actually been removed. For other products, government purchasing has been established and the material then resold to the American consumer. Of course, this technique of government purchase and resale might be used to equalize prices with the government absorbing the difference, and this is one of the authorities obtained in the extended Defence Production Act.

COMPROMISE ON PRICES

In a recent decision affecting lead and zinc, this Government attempted a compromise between a price which would permit a maximum flow of imports and a price which would best serve to combat inflation. Ceiling prices for imports were adopted which represented some rollback in the prices currently being received by exporters to the United States and, at the same time, an increase was granted in the prices permitted to domestic producers. At least for the great bulk of transactions, the ceilings for imports and for domestic production have thus been brought together, and it is the hope of the defence agencies that any reduction in imports resulting from this action will be offset by increased domestic production.

RE-ARMAMENT

While I am talking about our present-day commodity problems I must interject still one further complicating factor, and that is that the military programme in which we are interested is not merely the programme of the United States but the programme of many other countries. To the extent to which we assist these countries to build their military strength by sending them equipment and other military material, the process merely adds their requirement to our own American defence production programme. However, we also have a major interest in encouraging military production itself in other countries. This may mean recognizing additional requirements for them in the way of raw materials as well as new machine tools and other equipment. It may even call for finished consumer goods in cases where it has been necessary to divert productive capacity from civilian to military use. These elements also have to be included in all calculations.

I have not tried to give you the full detail of the many commodity problems which appear in a period of shortage, but merely to suggest the variety and complexity of considerations which have suddenly become important in recent months. These are difficult problems, but at least I think we are entitled to feel that we have made substantial progress towards increasing the small supply of essential commodities, and assuring the most effective use, both nationally and internationally, of that supply which is available. This is essential if we are to achieve our security objectives without weakening the civilian economic base upon which the strength of our economy depends.

Flotation of Diamonds

The Diamond Research Laboratory in Johannesburg is investigating improvements in metallurgical practices for diamond mining companies, especially increased recoveries of the smaller industrial stones and much work has been done on the possible application of flotation processes to the diamond industry.

Messrs. R. G. Weavind, I. Wolf and R. S. Young, state in an article in *Mining Engineering* (Vol. 3, July, 1951), that from the viewpoint of recovery processes, diamonds in their natural state may be grouped into two classes, the water-repellent diamonds, which adhere to a grease surface, and the water-avid diamonds, which, because of their wettability, will not adhere to a grease surface and must be recovered by means other than the grease tables used for water-repellent diamonds.

Experiments in the flotation of small diamonds from both kimberlite and alluvial deposits indicate the following conclusions:

Satisfactory flotation of —16 mesh diamonds, which are naturally water-repellent, may be accomplished using either Aerofloat 25 together with cresylic acid, or Du Pont B23 as frother together with kerosine as auxiliary oily conditioner or froth stiffener. The quantities of reagents required are of the order of 0.15 lb. per ton Aerofloat and 0.18 lb. per ton cresylic acid. The use of acid circuits is detrimental, and for best results a pH between 7 and 9 should be maintained. A flotation period of 5 to 10 minutes is necessary to insure that all floatable diamonds are removed. Diamonds larger than 16 mesh cannot be recovered satisfactorily by flotation. Xanthates do not act as collectors for diamonds, and this is probably associated with their inability to impart a water-repellent surface to this mineral. Water-repellent diamonds smaller than 28 mesh can be floated quite well by the addition of a frother alone, such as pine oil or Du Pont B23.

Partial flotation of the smaller sizes of wettable diamonds can be achieved by preconditioning with fatty acid soaps, cationic amines, and similar reagents, which will impart a water-repellent film to diamonds. Washing to remove excess reagent, followed by flotation, will result in a fair recovery, but the latter is much lower than for water-repellent diamonds.

RECOVERY OF CRUSHED BOART

Recovery of crushed boart from the waste products of industrial uses is best accomplished by first conditioning the diamonds present in the mixture with fatty acids, cationic amines, and other conditioners, removing the conditioning agent by washing, and floating in a cell of the pneumatic type. Flotation reagents found to be most suitable are Du Pont B23, and Aerofloat 25, together with cresylic acid. The optimum quantities are 1.2 grammes Du Pont B23, and 0.55 grammes Aerofloat plus 1.4 grammes cresylic acid, per litre of pulp in the cell. A solid-to-water ratio of 1 to 4 is found to be the most suitable, and alkaline circuits are necessary for best results. Diamonds larger than 28 mesh are not recovered satisfactorily by this procedure, but for finer sizes, flotation offers an excellent procedure for the reclamation of this strategic industrial material.

Southern Rhodesia Mining

The remarkable increases in the value of Southern Rhodesia's mineral output in the last year or two tend to mask the fact that the volume has shown little or no gain while other conditions, especially labour, costs, and efficiency are becoming worse. The report of the chief Government Mining Engineer, Mr. T. Elliott, states that the aggregate value of all mine products last year reached the record figure of £13,606,706, a rise of £2,313,505 over the previous record figure of 1949. About half the increase was from gold and silver, though the output was 17,017 f.oz. lower at 511,163 f.oz. The number of gold producers fell by 60, leaving the total number of mines at work 394. Most mines had to raise their grade to meet increased cost and generally speaking the increase in price due to currency devaluation has been overtaken by rising prices. This year a further decline was expected of around 10,000-13,000 oz., but this will probably be exceeded as production in the first six months of the current year has already fallen nearly that amount at 242,815 oz. compared with 253,196 oz. for the first half of 1950. During the year under review the Piper Moss and South Wanderer closed down, and the output of Globe and Phoenix declined by about 3,000 oz. On the other hand the Cam and Motor, and the Golden Valley mines increased output, and the Pool also showed a high ouput though with insufficient development to ensure its continuance. The Bushtick mine has closed down this year, but the Turks mine, with its new plant, should make amends. The total tonnage of ore crushed was the highest since 1945 with a total of 1,462,551 s.tons and the average grade 3.17 dwt.; 2.5 dwt. is said to be the very limit of payability.

The Ascot Mine near Norton—a typical Smallworker's Gold Mine

Gold mines absorbed the bulk of the native labour and employed 32,323 natives as compared with 34,121 the previous year. On the other hand, those employed on base minerals increased from 24,481 to 27,051, giving a total for last year of 59,374 as against 58,602 in 1949. A general shortage of native labour was experienced, the gold mines suffering particularly; only the asbestos mines are said to be fairly well supplied. Among the influences making for restricted supply are the opening up of the new Free State gold mines in the Union, the higher pay and more attractive conditions on the farms, and a big falling-off in Northern Rhodesian natives.

Turning to the base metal mines, a more encouraging picture is presented. The output of chromite increased by 52,932 s.tons to 321,352 s.tons. Production, or at any rate exports could have been larger, but for the want of adequate transport facilities, as large stockpiles of chromite are available for shipment when these can be provided. Production in the first half of the current year showed a further large expansion and totalled 193,106 s.tons compared with 159,821 s.tons in the first half of 1950. Mechanization has been largely responsible for the enlarged chrome production at the Umvukwe mines of the African Chrome Mines, where over 100 electric motor drills are in use, and many more in chrome and asbestos mines elsewhere. Experiments continue, to make these drills operate successfully in harder ground. A shaking conveyor has been installed at the Birkdale chrome mines which, if successful, should effect a drastic reduction in development footage cost, and the Rhodesian Vanadium Corporation is trying out an electrical mucking machine for clearing development ends at one of its mines.

Though the production of asbestos was 11,589 s.tons less than in 1949, values improved by £628,787. The reduction in output was due to the exhaustion of the reserve dump at the Shabanie mine. In the first half of the current year production was 38,261 s.tons against 35,966 s.tons in the same period last year. The Economic Cooperation Administration has just signed an agreement to finance the operation of three asbestos mines.

Production of coal from the Wankie collieries rose to 2,345,841 s.tons (+ 231,826, about 11 per cent), but the collieries could not fulfil their estimates owing to the shortage of native labour and the changeover to mechanized mining.

Other base mineral production is small compared to the three major branches just mentioned. Monetarily, production of tungsten concentrates was the most important, the output rising to 65 tons compared with 27 tons in the previous year. There was a further increase in the first half of the current year when 93 s.tons were produced. Block mica improved to 94,496 lb., while waste mica declined by about 60 per cent; the aggregate value was little changed. There was a small production of copper concentrates to the extent of 129 s.tons, obtained as a by-product from gold copper concentrates shipped to the U.S. from the Muriel mine. The E.C.A. has extensively drilled the Molly-Norah exclusive prospecting areas, where a large tonnage of low-grade copper sulphides has been indicated and the anomalies disclosed by geophysical work are being diamond-drilled.

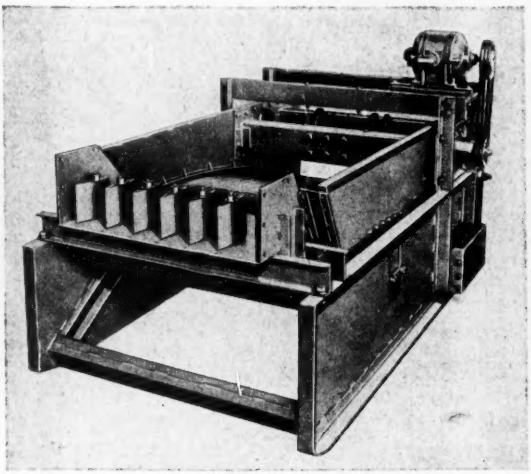
Production of tin concentrates was 14 tons down on the year at 105 s.tons, and has shown a further decline in the first six months of the current year. A start was made in the production of beryl in the year under review, when 932 s.tons were produced principally from the Bikita mine in the Victoria district, where a mechanical excavator and other equipment have been installed. The output increased further in the first half of the current year when the total was 565 s.tons as against 382 s.tons in the first half of 1950.

It remains to be seen how far the Southern Rhodesian gold mining industry will benefit by the retreat of the I.M.F. as regards sales of gold at a premium. Without the stimulus, however, of a considerable advance in prices further decline seems indicated. Increased competition for labour will doubtless come from the Orange Free State as the gold mines there swing into production, and it is long since any new finds have been made in the Colony.

Two Nordberg Screens—the Symons Hydro-Sizer and Symons Rod Deck

The Symons Hydro-Sizer Screen was originally developed by the Nordberg Manufacturing Co., Milwaukee, Wis., U.S.A. (London address: Brook House, Park Lane, W.1), for screening cuttings, chips and other foreign matter from mud circulated during the drilling of oil wells. However, the adaptability of this screen for fine, wet screening, and its ability to meet difficult operating conditions together with its unusual screening action and stamina in the hardest kind of service, led to other applications, particularly in the mining and in chemical industry.

As is well known, the efficient concentration of many minerals requires grinding through a given mesh with the least possible sliming of ore minerals. Classification by mechanical screening action is not affected by the difference in specific gravity of heavy ore minerals and lighter gangue materials and the sharp and efficient separation gained through screen classification ensures that all undersize will be removed from the grinding circuit immediately without being slimed by over-grinding. In many cases it is advantageous to increase the efficiency of a hydraulic classifier by preceding it with a screen to remove the coarser oversize as this allows a more efficient separation at the governing mesh in the hydraulic classifier.



The Symons Hydro-Sizer Screen, manufactured by the Nordberg Manufacturing Co.

The screening action of the Symons Hydro-Sizer Screen (which is described fully in the company's illustrated bulletin No. 111) is such as to vary the amplitude of vibration from the feed end to the point of discharge. At the feed end—where the load is the heaviest—the vibration is a gentle straight line motion. This lets the undersize through the first few feet without adding undue strain on the cloth. By the time the material has travelled half the length of the screen, the load is less and more movement can be given to the deck. At the discharge end, where the load is the least, maximum movement occurs. This greater movement frees the particles of any fines which still adhere, resulting in an extremely efficient separation and a comparatively dry oversize discharge. This maximum vibration also eliminates blinding.

It is possible to increase, or decrease, vibration to meet changing feed conditions. This can easily be done by loosening the three capscrews at either end of the power unit and shifting the weights in order to obtain the required amplitude.

The manufacturers claim that one of the features of the Hydro-Sizer is the long life of the screen cloth; this is made possible by rubber mounting, adequate support and improved method of cloth fastening.

When applying the stainless steel wire cloth, it is only necessary to lay in place and then tighten six bolts. There are no special angles for stretching the cloth, neither are there any holes in the cloth for bolts.

The feed trough is provided with adjustable deflectors in order to distribute the flow evenly over the entire screen surface. To prevent oversize particles getting into the undersize at times when there is an excessive flow of feed coming onto the screen, a rubber dam is placed between the feed trough and the screening deck.

The power unit is located at the discharge end where the greatest amplitude of vibration is required and it is bolted between heavy channels welded into box section and securely fastened to the screening deck.

With the flexible couplings placed between the power unit and drive, vibration is not transmitted to the pulley, thus eliminating the flapping and breaking of belts. The belts can be run quite loose, thus prolonging their life.

The level base is claimed to afford an easy method of installation and the substantial construction of the side members forming the base provides a most rigid type of support. Very little floor space or head room are required and no auxiliary apparatus is needed for mounting the screen or motor.

The Symons Hydro-Sizer Screen is built in two sizes 42 in. x 72 in. and 72 in. x 72 in. The smaller size requires a three horsepower motor, and the larger screen, driven by a five horsepower motor, has sufficient screening capacity to take care of the large tonnages encountered where large grinding mills are used. Moreover, units may be used in tandem when the tonnage warrants this.

Another screen produced by the same firm, the Symons Rod Deck Screen, has, as the name implies, a screen surface composed of rods, instead of the woven wire mesh or perforated plate, so commonly used as screening media. The individual spring steel rods are sprung into place and held in position by moulded rubber spacers.

The manufacturers claim that this patented screening surface is especially adapted for handling heavy feeds of wet, sticky and clayey ores on comparatively small openings. The main field of application of this screen is for mine screening, but it is also applicable wherever sizing is not confined to square openings. For instance, its use is recommended for removing undersize from heavy tonnage crusher feeds in both closed and open circuit work. Although primarily designed for dry screening, it is stated to be just as effective with wet material or with water sprays.

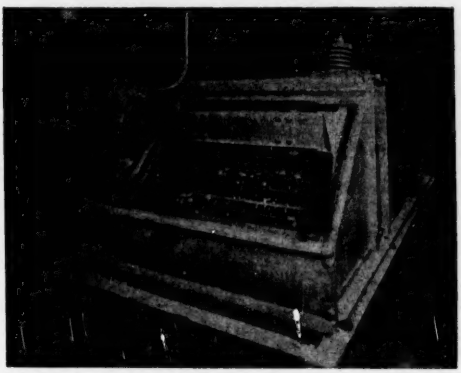
The makers ascribe the low cost of screening with this screen to several factors, viz: the low cost of rods (as compared with other types of screening surfaces), and their long life; the saving in time and labour needed for replacements, and its great capacity. In a direct comparison of a year's operation of a Rod Deck Screen, handling the

same load as was carried by two other screens, equipped with heavy rectangular opening wire cloth, the cost of rods for the Symons screen is stated to have been $55 as against $720 for wire cloth for the other two. There was a corresponding saving in labour needed for replacement.

The use of smooth parallel rods, having openings 7 in. in length is said to permit a rapid passage of the undersize material. The unsually large capacity per sq. ft. of area of this screen often cuts to half the number required as compared wih conventional type screens.

Several factors are stated to contribute to the long life of this new screen surface—oil tempered abrasion-resistant spring steel is employed and the construction permits of the use of comparatively large rods without cutting the screening capacity. The smaller sized rods are replaced manually and a simple tool is provided for this purpose for 5/16 in. and larger rods. There is no waste of any part of the screening surface through partial wear of another portion.

Because of the strength of the screen surface and the rigid support (cushioned against shock by the moulded rubber mounting), big material may be handled without



The Symons Rod Deck Screen manufactured by the Nordberg Manufacturing Co. The dark lines indicate where new rods have just been installed

damage to this screen. In fact, according to the makers, this screen with its single deck of steel rods, will take the place of a double-deck screen with a guard deck protecting the small opening cloth. The feed end of the screening deck is supported by a rubber rocker, which constrains the motion to a line of vibration at approximately 30° with the horizontal. This action, and the slope of the rods, provides a quick getaway for the feed, but, as it travels towards the discharge end, the thorough shape-up ensures a rapid passage of all undersize.

The vibrator unit is located above at the discharge end, with the motor and drive placed outside the housing away from dust. The drive is through a flexible coupling. The vibrator weight is held almost in balance by coil springs, but, when a speed of several hundred revolutions is attained, the weight throws out against a rubber stop and the full vibrating force is developed. This is stated to assure a strong vibration, which will not dampen out with heavy loads, and eliminates over-throw when starting and stopping. The amount of vibration can be changed quickly by turning a large adjusting nut. This screen is described fully in the company's illustrated bulletin No. 94B, which contains also sizes and dimensions.

Technical Briefs

Coke From Lignite

Research work is in progress in East Germany into ways of making coke out of lignite, according to the President of the East German Chamber of Technical Science. By treating washed lignite with chlorine in a normal furnace, he had produced a percentage of coke which made this method practical.

Safety Explosives in Sulphur Mining

Tests carried out on explosives used for sulphur mining have been described by Dubnov and Bakharevich, (*Gornyi Zhur.*, 1950, 20). The explosion temperature of ammonite No. 8 is 1,750°C. and this is considerably higher than that of sulphur dust. A number of flame attenuators were, therefore, tested for use in sulphur mines where there is an explosion risk. Of the various substances tried, the best were ammonium chloride, agar-agar gel, and sodium sulphate. Other substances tried were only moderately successful and sodium chloride was quite ineffective. It was found to be less effective to use the attenuator as an outer layer than to mix it in with the explosive.

Silicosis in Slate Mining

Cases of silicosis occurring in slate mining and milling have recently been described by R. H. Mansur (*Am. Ind. Hyg. Assoc. Quart.*, 12, 21, 1951). The dust contained, on the average, about 35 per cent silica, and 27.5 per cent of the workers, having an average exposure of 24.6 years in the industry, showed evidence of either silicosis or tuberculosis when X-rayed. Dust concentration in the mine varied from zero to 150 million particles per cubic foot and, in the mill, the concentration was 17.3 million particles per cubic foot. It was possible to reduce these concentrations appreciably by standard methods, such as wet drilling and the use of local air exhausting systems.

New Continuous Leaching Technique to Increase Uranium Production

A new continuous leaching technique has enabled the Galigher Co., Monticello, Utah, to increase considerably their uranium production. The process may be divided into eight stages. The ore is first of all crushed to below 10 mesh and is then roasted with salt. The calcine is then quenched in hot sodium carbonate solution. It is then ground to 65 mesh and subjected to agitation leaching in 7-9 per cent sodium carbonate solution. It is next subjected to countercurrent washing and filtered. Uranium and vanadium are precipitated with sulphuric acid and purified *via* the oxides U_3O_8 and V_2O_5 by fusion and leaching. (J. A. Butler, *Eng. Min. J.* 152, No. 3, 56, 1951.)

A Calorimetric Method for the Study of Grinding

An interesting apparatus for the study of grinding has been described by A. K. Schellinger, (*Trans. Am. Inst. Min. Met. Eng.*, Tech. Pub. 3071-B). It consists of a brass grinding chamber enclosed in a water jacket, and is used for investigating the small scale grinding of brittle minerals by ball milling. In this case, the balls used were of cast iron and the diameter of the mill was 4 in. It was found that the absolute thermodynamic efficiency of surface production is a function, amongst other things, of mineral quantity and pulp density. It was also found that there was no appreciable difference in peak efficiency between dry grinding and wet grinding 60 per cent solids at 60 per cent critical speed. On increasing dilution with water it was found that efficiency fell slightly from 19 per cent dry to 14.5 per cent at 30 per cent solids.

Metals, Minerals and Alloys

Copper.—The docker's strike in New York and other ports has further intensified the already acute shortage from which consumers are suffering. It is not anticipated that there will be any increase in price, at any rate until the New Year, and with demands for the defence programme mounting, the stockpile is looked to as the only saviour in sight. The failure to raise domestic prices is reacting on scrap supplies, which are still being withheld.

Lead.—Congress did not pass the Bill for extending import duties on lead and zinc, though the House of Representatives approved the Bill; only Senate action therefore will be necessary when Congress re-assembles. Imports are naturally expected to decline furthr, at any rate during the next two months, and further withdrawals from stockpile will probably be necessary.

Meanwhile the N.P.A. has placed imported pig lead under allocation from the beginning of the current month, which will allow all consumers to share in the imported supply, instead of only a few consumers. Normally, the United States has about 110,000 s.tons available for distribution each month, comprising domestic primary lead, scrap lead and imported lead, in about equal proportions. From now on all consumers will be restricted to their allocation. The 2c. increase in scrap prices is stated to be bringing out material previously held by dealers and others and to that extent the supply situation has somewhat eased.

Mexican lead averaged $21.30 per 100 lb., for week ended October 20.

Mr. Herres, vice-president of the Combined Metals Reduction Co. stated at the Los Angeles meeting of the American Mining Congress that the general shortage of lead and zinc would probably continue for another two years, but Dr. Joseph Zimmerman, editor of the *Daily Mail Reporter*, anticipated a balanced situation being reached earlier, about the end of 1952.

Tin.—It is reported from Washington that the R.F.C.-Bolivian negotiations for a higher price than 112c. per lb. for tin have definitely failed. Señor Martinez Vargas, Bolivian Ambassador, had a brief meeting with Mr. Symington, the R.F.C. administrator, on Thursday of last week, when Mr. Symington said that 112c. was the best offer he could make, and this the Bolivian Ambassador rejected, adding that there was nothing further to discuss, so it is judged that negotiations have been broken off indefinitely.

It is believed that the U.S. tin mission to Indonesia and Malaya, the departure of which from New York was noted in our last week's issue, may have in contemplation negotiations to buy tin, but according to a Singapore report this week any new agreement with the U.S. would be acceptable only for a three-year period with a guarantee of a fixed price. However, it is possible that what the Americans have in mind is not the purchase of metal but of concentrates for the Texas smelter which will feel the draught if Bolivian concentrates continue to be sent elsewhere. Efforts are also expected to be made to induce the Indonesian government to ship their concentrates to Texas instead of to Arnhem. Of course, with the abrogation of the extra export duty on concentrates shipped to other than British destinations, the mission might seek to negotiate the export of Malayan concentrates also.

Total stocks of tin in all forms in Malaya and the Straits are reported to have fallen at the end of September to the lowest level on record—5,802 tons. A month earlier they stood at 7,141 tons, so obviously disposals during the month were large.

The Office of International Trade has fixed an export quota of U.S. tinplate for the first quarter of 1952 of 115,000 tons, compared with 125,000 tons for the current quarter.

Zinc.—As usual there is little to notice in regard to zinc. In the United States, supplies to consumers have improved, as in the case of lead, with the increase in the O.P.S. ceiling price of 2c. per lb., which has resulted in a resumption of shipments by dealers. The Defence Production Administration this week included zinc in their classification of "most critical" metals. Production in Western Germany in August was 11,638 tonnes, slightly below the July figure. Scrap demand continues strong, the Bonn quotation being raised to D.M.195 per kilo.

Aluminium.—The Board of Trustees of the National Association of Aluminum Distributors have adopted a programme of activities to guide operations over a period of years and the first annual meeting of the Association is scheduled to take place in February next. Membership of the Association is representative of more than half of the industry.

The Vice-President of Alcoa, Mr. Lawrence Litchfield, Jr., told the American Mining Congress Convention at Los Angeles that the U.S. production is to be expanded by some 600,000 s.tons a year, of which Alcoa would contribute 205,000 s.tons, the Kaiser Aluminum & Chemical Co. 220,000 s.tons, the Reynolds Metals Co. 120,000 s.tons, with a fourth producer to come into the picture later. This total would increase the pre-Korean output by 80 per cent. The enlarged programme will call for 5,000,000 tons of bauxite annually to come from Arkansas, Surinam, British Guiana and Jamaica.

Alcoa is to build a new reduction plant at Rockdale, Texas, to yield an additional 80,000 s.tons of primary metal. A new aluminium factory is in process of construction at Strnisce in Slovenia. One electrolysis building will house 160 furnaces, and a second building is in course of construction; their combined capacity is reckoned at 30,000 tonnes of metal. Construction is expected to start shortly on the biggest aluminium plant in Norway at Sunndalsoera with a capacity of 40,000 tonnes of metal yearly, with costs estimated at slightly over £100 per ton. It is hoped that owing to the wet summer in Europe, Marshall plan countries will be able to produce most of the 500,000 tonnes of aluminium which they will require next year.

Magnesium.—Mr. Litchfield, addressing the American Mining Congress Meeting at Los Angeles last week said that the prospect for magnesium supplies was much better than for aluminium, as the pre-Korean output of 15,726 s.tons last year is to be raised eight times to 122,000 s.tons —98,000 tons to come from reactivated plants and 24,000 tons from the Dow Chemical Co.'s Freeport works.

Manganese.—U.S. imports of manganese ore (+ 35 per cent Mn) for the first five months of the year were 730,269 s.tons, the principal suppliers being India 283,577, Gold Coast 169,660, South Africa 124,811, Cuba 41,371, Brazil 28,285 and Mexico 22,228 s.tons.

Molybdenum.—The Tungsten Molybdenum Committee has issued allocations and export-import quotas for molybdenum ores, concentrates and primary products. The total scheduled for distribution is 4,720 tonnes, the principal recipients being the U.S. 3,620, U.K. 538, France 232, Germany 157, Sweden 106 tonnes. Exports are expected to amount to 1,075 tonnes of which the U.S. may be responsible for 680, Chile for 365 and Norway for 30, while the recipients listed are U.K. 538, France 232, Germany 157 and Sweden 106 tonnes. The shortage in supplies as compared with requirements is estimated at over 70 per cent.

Nickel.—More particulars are available this week of the projects for stimulating the nickel industry in New Caledonia. The Government mission recently sent to the island (see *The Mining Journal*, Sept. 28, page 317), has listed four necessitites: modern equipment, to mine the island's

several hundred million tons of nickel ore; adequate coal supplies; sufficient precipitation to ensure normal supply of hydro-electric power; and adequate prices. The Sté. Le Nickel has received a Marshall Aid credit for $965,000 besides additional credits from French financial institutions. American coal shipments next year should make good the shortfall in Australian supplies and a further increase in the French nickel price above Frs. 595 per kilo is recommended. As a result production next year is estimated at 6,500 tonnes whereas the French annual nickel consumption is somewhat about 6,000 tonnes. Last year's output was 3,420 tonnes of matte, with imports only 110 tonnes.

Imports of nickel into the U.S. in July are computed at 7,124 s.tons and consumption for the same period 6,653 s.tons. Consumer stocks at the end of the month totalled only 5,080 s.tons.

Messrs. Roura and Forgas have submitted to the Greek government their terms for exploiting nickel mines at Larymna in the north of Boeotia. Should they be granted a long-term concession, they would process the ore locally, and train Greek personnel both in mining and treatment.

Quicksilver.—The U.S. quotation was lowered by $2 per flask last week to $218/220 nom. per flask. As regards the situation in Spain, our Madrid correspondent informs us that following on the heavy shipments to the United States last year, a lack of demand has characterized the American trade, though a shipment of 5,000 flasks was made very recently. Total exports from May to October totalled 360,952 kilos, the principal importing countries being the U.K. 170,189, France 62,008, Switzerland 29,250, Japan 22,460, Norway 13,800, and the U.S. 10,350 kilos.

Sulphur.—Production of sulphur in the U.S. for the first eight months of the year was 3,501,260 tons, and producers stocks 2,665,801 tons.

Tungsten.—The Tungsten-Molybdenum Committee of the International Materials Conference has published schedules of the allocation of supplies of tunstiferous materials for the fourth quarter of the current year. These envisage the distribution of 3,245 tonnes of ores, concentrates and primary products. The United States is allocated 1,550 tonnes, the U.K. 690, Germany 208, France 285, and Sweden 202 tonnes. Exporting countries are listed for a total of 2,301 tonnes of which Bolivia is to contribute 600, Portugal 545, Spain 246, Australia 215, Asia 200 and Brazil 170 tonnes. Of these exports, the chief recipients are to be U.S. 900, U.K. 680, Germany 308, France 165 and Sweden 162 tonnes. Excluding all questions of strategic stockpiling, requirements are estimated to exceed fourth quarter production by over 80 per cent. These figures indicate statistically for the first time how severe is the shortage of supply.

A Reuter report from Lisbon says that while export licences to the U.S. are being freely granted in contrast to European destinations, average quotations from American sources do not exceed $61/62, which is below the British equivalent. Exporters are living in hopes that these prices may be raised. The Franco-Portuguese trade agreement has been varied to provide for an export of 400 tonnes of concentrates to France, but whether this will affect the market it is as yet impossible to judge.

An Australian concern, Tungsten Consolidated Ltd., has secured an option over what it describes as a rich and potentially large deposit at Rye Park, near Frogmore, New South Wales. Developments so far are said to have averaged 2 per cent WO_3.

The Ministry appear to have been getting along pretty well and the present price, 525s. per unit, should encourage production. There is no indication of any rise in the present quotation at the moment; indeed, certain observers are of the opinion that over the next few months some slight recession may be seen. We understand that small shipments continue to be made from Portugal.

The London Metal Market

(From Our Metal Exchange Correspondent)

This last week has seen relatively violent fluctuations in Singapore which have been followed to a lesser degree in London, and the net result has been that it is once more possible to make hedging sales in London against purchases in the East; at the same time the backwardation has continued to diminish. The stocks of tin in Metal Exchange official warehouses continue to show an improvement and it is expected that this tendency will go on. Consumers have shown slightly more interest.

The main point of discussion during the week, apart from the Election result, has been the possible outcome of the visit being made to Malaya in the near future by a U.S. Government Commission. On the one hand it is felt that provided visits are paid to mining properties which are operating under average difficulties, a better picture than at present available in the U.S., will be obtained of the living conditions and personal hazards which at present are part of life in Malaya. On the other hand a two weeks' visit can be of little value in trying to achieve the object of the Commission which is to study production costs, and with the example of what has happened in the Bolivian negotiations after a similar Commission had visited that country, it is not felt that the visit will open the way to successful negotiations being carried through for a long term contract between the two countries. It is already clear that the Americans would not consider anything longer than a two year contract, and the producers are known to consider this insufficient.

There has been no change in the position of other metals, and this is likely to remain the case until the new Government have given some indication of their intentions with regard to the continuation or otherwise of bulk buying.

On Thursday the official close on the tin market was: Settlement price £1,005, Cash Buyers £1,000, Sellers £1,005; Three months' Buyers £982 10s., Sellers £985. In the afternoon the market was slightly easier. Turnover for the day was 70 tons. Approximate turnover for the week was 605 tons.

The Eastern price on Thursday morning was equivalent to £984 10s. per ton, c.i.f. Europe.

Iron and Steel

The change of Government raises the question of the future of steel rationing. Preparations are far advanced for the revival of the war-time system of rationing which was due to begin on December 3, and in view of the great shortage of supplies it is not disputed that during the period of scarcity some form of regulated distribution is necessary. But the defects of the "M" form scheme have been glaringly exposed. During the war period it led to the issue of authorizations far in excess of the steel available and the possibility of devising a simpler and more flexible system of allocation is now mooted. Whether there is time to introduce modifications of the "M" form plan before December 3 is another matter.

Of course the best solution of the problems arising from the steel famine is to provide more steel. Progress in this direction may be achieved by resolute effort. Hitherto steel production has been successively restricted by shortages of ore, scrap and coke. But the ore shortage has been overcome. Imports during the third quarter reached the record figure of 2,787,200 tons. Good stocks have been built up and in this respect blast furnacemen's anxieties have been dispelled.

On the other hand the scrap situation is still an embarrassment. Home scrap collections in September were actually less than those in the corresponding month of last year and imports are still more severely restricted. It is understood however that U.S. firms who have been buying

German scrap may be willing to stand aside, so that shipments to the U.K. may be increased. There remains the difficulty of providing the extra fuel without which an expansion of ingot production is impossible. This is a subject which is constantly under review and the outlook may be described as "not unhopeful."

Certainly higher productivity in the steel industry would provide a welcome impetus to many British industries. In fact, instances of industrial stoppages through lack of pig iron or steel products are of almost daily occurrence. The authorities have been ruthless in their restriction of expert licences: so much so that shipments in September were the smallest for any month this year. Nevertheless, home deliveries fall far short of requirements and the clamour for supplies has acquired a new intensity.

NOVEMBER 1 PRICES

COPPER

Electrolytic	£227 0 0 d/d
Fire refined, high conductivity	£227 0 0 d/d
Fire refined, high grade	£226 10 0 d/d
Fire refined, ordinary quality + 99.7%	£226 0 0 d/d
Fire refined, ordinary quality + 99.2%	£225 10 0 d/d

TIN

(See our London Metal Exchange report for Thursday's prices)

LEAD

Soft foreign, duty paid	£175 0 0 d/d
Soft empire, including secondary lead	£175 0 0 d/d
English lead	£176 10 0 d/d

ZINC

G.O.B. spelter, foreign, duty paid	£190 0 0 d/d
G.O.B. spelter, domestic	£190 0 0 d/d
Prime Western	£190 0 0 d/d
Electrolytic and refined zinc	£194 0 0 d/d
Zinc (99.99% Zn)	£196 0 0 d/d
Sheets	£210 10 0 ex works
Zinc oxide (red seal)	£205 0 0 d/d
Zinc oxide (green seal)	£206 10 0 d/d
Zinc oxide (white seal)	£207 10 0 d/d

ANTIMONY

English (99%) delivered, 10 cwt. and over	£390 per ton
Crude (70%)	£305 per ton

NICKEL

99.5% (home trade)	£454 per ton

OTHER METALS

Aluminium, £124 per ton.	Platinum (scrap), £33.
Bismuth, 28s. lb.	Platinum, £27/£33 5s. nom.
Cadmium, 18s. 9d. lb.	Rhodium, £45 oz.
Chromium, 6s. 3d. lb.	Ruthenium, £30 oz.
Cobalt, 17s. 6d. lb.	Quicksilver, £73 10s./£74 ex-warehouse.
Gold, 248s. f.oz.	Selenium, 25s. nom. per lb.
Iridium, £65 oz. nom.	Silver (bar), 77d. f.oz. spot and forward.
Magnesium, 1s. 6d. - 2s. lb. according to quantity.	Tellurium, 19s. lb.
Osmiridium, £35 oz. nom.	
Osmium, £70 oz. nom.	
Palladium, £8 10s. oz.	

ORES, ALLOYS, ETC.

Bismuth	40% 14s. 9d. lb. c.i.f. 30% 12s. 9d. lb. c.i.f.
Chrome Ore—	
Rhodesian Metallurgical (lumpy)	£13 per ton c.i.f.
" " (concentrates)	£13 per ton c.i.f.
" " Refractory	£12 12s. per ton c.i.f.
Baluchistan Metallurgical	£13 18s. 6d. per ton c.i.f.
Magnesite, ground calcined	£26 - £27 d/d
Magnesite, Raw	£10 - £11 d/d
Manganese, Best Indian	(Nominal)
Molybdenite (85% basis)	103s. 1¼d. per unit c.i.f.
Wolfram (65%), U.K.	525s. nom. c.i.f.
Tungsten Metal Powder (for steel manufacture)	35s. nom. per lb. (home)
Ferro-tungsten	33s. nom. per lb. (home)
Carbide, 4-cwt. lots	£30 3s. 9d. d/d per ton
Ferro-manganese, home	£40 8s. 9d. per ton
Ferro-manganese, export	Nom.
Brass Wire	2s. 7¼d. per lb. basis.
Brass Tubes, solid drawn	2s. 1d. per lb. basis.

Mining Men and Matters

Col. G. G. H. Bolton has been appointed chairman of the National Coal Board, North Western Division, in succession to Mr. W. J. Drummond, now deputy chairman of the National Coal Board. Col. Bolton is succeeded as deputy chairman by Mr. W. H. Sales, deputy labour director of the East Midlands Divisional Board.

Sir John R. Chancellor has resigned from the board of Wankie Colliery.

Mr. John Chipman, head of the Dept. of Metallurgy of the Massachusetts Inst. of Technology, has been elected president of the American Society of Metals.

Mr. J. E. Clay has been transferred from Sub Nigel to West Driefontein.

Mr. K. A. Creery, president of The British Metal Corporation (Canada), has been elected a director of The British Metal Corporation, London, England.

Mr. Carl R. Davis has resigned from the board of the Mawchi Mines.

General Sir Douglas Gracey has been appointed a director of Attock Oil.

Mr. J. E. Rockingham has resigned his appointment as geologist with the Nigerian Geological Survey, and has joined the staff of the Colonial Development Corporation (Minerals), as geologist at Murongo mines, Tanganyika.

Mr. W. E. Sinclair is leaving Johannesburg shortly on a professional visit to East Africa in the interests of a London Group and will be away for several weeks. His address during November will be C/o Standard Bank of S.A., Nairobi, Kenya.

Mr. A. R. O. Williams has been appointed a director of Frontino Gold Mines in succession to Mr. W. H. C. Deikie.

The Royal Society of Arts, John Adams Street, Adelphi, London, W.C.2, will hold a meeting on Wednesday, November 21, at 2.30 p.m., when a paper entitled "The Reclamation of Abandoned Industrial Areas" will be read by Professor L. Dudley Stamp.

The World Metallurgical Congress.—The next session of the World Metallurgical Congress will be held in Europe within the next three to five years. This was decided at the recent meeting of the Congress held in Detroit from October 14-19 last. While no place has yet been fixed for next session, Brussels has been mentioned as a likely capital.

The Mining and Metallurgical Club Elects New Officers.—At the annual general meeting of the Mining and Metallurgical Club, held yesterday, Lt.-Col. A. R. O. Williams was elected President in succession to Mr. J. B. Dennison, Vice-Presidents elected for the coming year were: Dr. F. E. Keep, Col. L. C. Hill, and Mr. St. J. R. C. Shepherd. Vacancies on the Committee were filled by the appointment of Messrs. J. A'C. Bergne, A. G. Eadie, J. B. Simpson and H. R. Taylor.

Business Items

Mr. S. A. Ghalib has been appointed assistant chief engineer, electronic control department, Metropolitan-Vickers Electrical Company.

The death is announced of **Mr. Albert E. Hancock,** service manager of the Hunslet Engine Co.

The death has been announced of **Mr. James George Stephens,** governing director, Stephens Advertising Service, Ltd.

Sir Cecil Weir has joined the board of the Pyrene Co.

Colonial Development Corporation announce that the address of their head office has been changed to: 33, Hill Street, London, W.1. Telephone: Mayfair 8484.

Derby and Company, Ltd., formerly of Cheyne House, 62-63, Cheapside, London, E.C.2, have announced that their address is now St. Swithin's House, 11-12, St. Swithin's Lane, London, E.C.4.; telephone: Avenue 5272.

Consolidated Tin Smelters have announced that as from October 15, its address and that of its subsidiaries, the Cornish Tin Smelting Co., Eastern Smelting Co., The Penpoll Tin Smelting Co. and Williams, Harvey & Co. will be St. Swithin's House, 11/12, St. Swithin's Lane, London, E.C.4. Telephone: Mansion House 2164/2167.

Anglo-American Council on Productivity have announced that a productivity team representative of British manufacturers of metal-working machine tools, sailed for the U.S.A. on October 16. The team's prime object will be to study American manufacturers' methods of metal cutting and abrading machine tools, and to obtain from American industry as a whole information that may be of interest and value to British makers. The team will prepare a report in due course.

The Mining Markets

(By Our Stock Exchange Correspondent)

The unexpected effect of a Conservative victory on the stock markets must have dashed the hopes of many politicians of the soap-box variety. Since the announcement of the results prices have plummeted. Gilt-edged led the way urged by continual small selling and a total absence of buyers. Industrials followed suit, the leading "blue chip" shares being well down on their pre-election level.

Mining shares generally were less affected although coppers and lead/zinc issues took some hard knocks. This interesting trend probably cannot be attributed to any one cause, but to a combination of circumstances. Firstly, many investors had undoubtedly hoped for a much larger majority; there was thus a large bull account outstanding. The closing of this started the fall, and investors, judiciously assessing the appalling problems facing the incoming Government, saw fit to cash in on some of the capital profits made over the past months, and to stand aside for a time to await developments. The fall in gilt-edged was hastened by rumours of an impending increase in the bank rate. Many members also expect drastic and unpalatable financial legislation.

Tin shares, alone among the mining markets showed buoyancy. The removal of fears of a dividend freeze coupled with hopes of a stronger colonial and military policy brought in buyers. Beralt Tin & Wolfram lost no time in declaring a dividend commensurate with the company's prosperity. The final payment will be 60 per cent; making 100 per cent for the year against 20 per cent for 1949/50. An interim dividend of 30 per cent was declared for the current year as against 15 per cent. The shares closed 6d. up at 28s. 6d. after touching 29s. 3d.

Pahang Consolidated are paying a final dividend of 45 per cent; making 75 per cent for the year. Profit before tax totals £1,237,582 against £446,789 last year. This payment disappointed optimists and the shares fell 9d. following the announcement.

In a weak diamond section, the declaration of a final dividend and bonus by Casts, bringing total payments for the year up to 100 per cent, did little to brighten the general gloom. Last year 80 per cent was paid. Casts is a large producer of industrial stones, and it is interesting to note that the demand for these continues at a record high level. The current yield on the shares works out at about 12 per cent.

The pouring of the first gold bar obtained from the O.F.S. by the managing director of Union Corporation at St. Helena is a landmark in the progress of this new field. Normally markets would have taken this as a sign of encouragement, but O.F.S. issues were mainly fractionally easier over the week. The President Steyn No. 1 shaft struck the reef at 4,120 ft. below the collar. Average value sampled gave 36.66 dwt. over 6.41 in. equivalent to 235 in.-dwt. These results disappointed those who had bought the shares in anticipation of the strike, and the price fell away. Among finance houses Hendersons Transvaal and Consolidated Mines Selection both improved their position over the week, although finishing well below the best. The former continued to attract attention on its copper potential. The latter, still registered in the U.K., clearly benefits by the change of Government at home.

Ashanti Goldfields report a strike of native labour since last Thursday. At the time of writing it remains unsettled. Annual profits are down from £1,133,789 to £1,067,041.

Although not strictly a mining company readers may be interested in Cementation's latest figures. The company is again paying 15 per cent but on an increased capital. Net trading profit is up at £424,041 against £396,480 last year. This rapidly expanding concern will shortly be making a fresh "rights" issue to existing shareholders.

FINANCE	Price Oct. 31	+ or − on week
African & European	3½	
Anglo American Corpn.	7⅜	−½
Anglo-French	24/4½	+7½d
Anglo Transvaal Consol.	40/-	
Camp Bird	13/9	−1½d
Central Mining (£1 shrs.)	46/3	−1/3
Consolidated Goldfields	52/6	−7½d
Consol. Mines Selection	36/10½	+7½d
East Rand Consols	4/1½	−1½d
General Mining	5⅜	−⅛
H.E. Prop.	38/1½	−1/3
Henderson's Transvaal	16/6	+1/3
Johnnies	3½	−¼
Rand Mines	7⅛	−⅛
Rand Selection	47/6	+1/3
Union Corporation	10⅛	−⅛
Vereeniging Estates	5⅜	
Weits	33/9	−1/10½
West Wits	45/7½	−1/4½
RAND GOLD		
Blyvoors	51/6	−1/-
Brakpan	19/9	−3d
City Deep	2⅜	
Consol. Main Reef	2⅛	−⅛
Crown	4⅛	
Daggas	3⅛	−⅛
Dominion Reefs	1/9	
Doornfontein	24/6XR	−1/3
Durban Deep	3⅝	+⅛
E. Daggas	26/3	−7½d
E. Geduld ... (4/- units)	53/1½	−7½d
E. Rand Props	4⅛	−⅛
Geduld	7⅜	−⅛
Grootvlei	38/9	−7½d
Libanon	15/6	−6d
Luipaards Vlei	23/3	−3d
Marievale	23/3	−3d
Modderfontein B.	5/-	+3d
Modderfontein East	36/3	
New Kleinfontein	33/9XR	−1/10½
New Pioneer	20/7½	−7½d
Randfontein	18/9	−6d
Robinson Deep	15/3	−6d
Rose Deep	37/6	
Simmer & Jack	6/10½	−1½d
Springs	9/9	−3d
Sub Nigel	3⅛	
Van Dyk	14/6	−3d
Venterspost	28/9	−1/3
Vlakfontein	18/6	−3d
Vogelstruisbult	29/-	−3d
West Driefontein	6⅜	
W. Rand Consolidated	44/4½	−2/6
Western Reefs	43/9	

O.F.S.	Price Oct. 31	+ or − on week
Alpha F.S.A.	10/6	−3d
Blinkpoort	21/10½	−7½d
Central Mining F.S.	4/7½	−1½d
Freddies	11/6	−3d
Freddies N.	11/3	+3d
Freddies S.	12/10½	+1½d
F.S. Geduld	3⅛	−⅛
Geoffries	24/9	−9d
Harmony	23/-	−3d
Lydenburg Estates	10/6	
Middle Wits	22/9	−6d
Orange Prospecting	45/7½	−1/3
President Brand	20/8	
President Steyn	18/6	−9d
St. Helena	28/9	
U.F.S.C. & G.	8/3	−3d
Virginia Deb.	76	
Virginia Ord.	12/6	−3d
Welkom	38/1½	−7½d
Western Holdings	3⅜	+⅛
WEST AFRICAN GOLD		
Amalgamated Banket	2/4½	
Ariston	7/4½	
Ashanti	30/6	−3d
Bibiani	10/1½	−3d
Bremang	3/1½	
G.C. Main Reef	3/7½	−3d
G.C. Selection Trust	9/3	−3d
Konongo	3/6	−4½d
Kwahu	5/-XD	
London & African Mng.	2/3	−1½d
Lyndhurst Deep	1/9	−1½d
Marlu	2/1½	
Nanwa	6d	
Taquah & Aboso	7/9	−3d
AUSTRALIAN GOLD		
Boulder Perseverance	3/1½	−1½d
Gold Mines of Kalgoorlie	13/3	
Great Boulder Prop.	7/9	−3d
Great Western Consol.	6/9	+3d
Lake View and Star	22/-	−6d
Mount Morgan	19/3	+3d
North Kalgurli	19/-	+3d
Paringa	9d	−1½d
Sons of Gwalia	12/6	
South Kalgurli	8/9	
Western Mining	8/9	
Wiluna	14/-	+1/-
MISCELLANEOUS GOLD		
Cam and Motor	37/6	
Champion Reef	8/6	
Falcon Mines	10/9	−3d
Globe & Phoenix	24/9	

MISCELLANEOUS GOLD (contd)	Price Oct.31	+ or − on week
G.F. Rhodesian	7/9	−6d
London & Rhodesian	6/7½	+1½d
Motapa	2/10½	−1½d
Mysore	5/3	
New Guinea	1/9	
Nundydroog	6/6	
Ooregum	3/-	−⅛
Oroville	13/10½	−4½d
St. John d'El Rey	39/6	−1/1½
Zams	39/6	−6d
DIAMONDS		
Anglo American Inv.	5⅛	−⅛
Casts	43/6	−9d
Cons. Diam. of S.W.A.	4½	−⅛
De Beers Defd. Bearer	70/9	−3/6
De Beers Pfd. Bearer	16	−½
COPPER		
Chartered	73/9XD	−1/6
Indian Copper	4/-	−1½d
Messina	5⅜XD	−⅛
Nchanga	8½	−⅛
Rhod. Anglo-American	67/-XD	−6/-
Rhodesian Selection	22/1½	−7½d
Rhokana	24½XD	−2½d
Rio Tinto	24½	−⅛
Roan Antelope	14/3	+3d
Selection Trust	50/3	−2/10½
Tanks	57/9	−1/3
Tharsis Sulphur Br.	55/-	+2/6
TIN (Eastern)		
Anglo-Burma	3/3	−3d
Ayer Hitam	30/6	+1/9
Bangrin	39/9	+3d
Gopeng	15/6	−3d
Hongkong	12/9	+1/3
Ipoh	33/-	+6d
Kamunting	14/6	+4½d
Kepong Dredging	13/9	+4½d
Kinta Tin Mines	18/-	+3d
Kramat Pulai	4/3	
Malayan Dredging	25/-	+1/6
Pahang	18/3XD	−3d
Pengkalen	12/-	+6d
Petaling	15/3XD	+4½d
Rambutan	18/-	+6d
Siamese Tin	26/3	+3d
Southern Kinta	17/3	+2/-
S. Malayan	30/9	+9d
S. Tronoh	26/-	−3d
Sungei Kinta	24/-	+2/9
Tekka Taiping	11/-XD	+3d
Tronoh	32/9	+9d

TIN (Nigerian and Miscellaneous)	Price Oct. 31	+ or − on week
Amalgamated Tin	11/7½	+6d
Beralt Tin	28/6	+6d
Bisichi	4/4½	+1½d
British Tin Inv.	18/10½	−3d
Ex-Lands Nigeria	7/7½	+3d
Geevor Tin	17/6	+6d
Gold & Base Metal	5/3	−1½d
Jantar Nigeria	8/6	
Jos Tin Area	11/4½	+1½d
Kaduna Prospectors	4/-XD	
Kaduna Syndicate	6/-XD	+3d
London Tin	6/10½	
Ribon Valley	1/4½	+1½d
United Tin	3/4½	
SILVER, LEAD, ZINC		
Broken Hill South	58/9XD	−4/-
Burma Corporation	5/1½	+6d
Consol. Zinc	37/6	
Lake George	28/6	−3d
Mining Trust	8/3	
Mount Isa	53/9	−9d
New Broken Hill	31/9	−9d
North Broken Hill	78/-	−3/9
Rhodesian Broken Hill	22/6	−9d
San Francisco Mines	35/3	−6d
Trepca	3/9	−1½d
MISCELLANEOUS BASE METALS & COAL		
Amal. Collieries of S.A.	60/7½	+7½d
Associated Manganese	67/-	−1/3
Chinese Engineering	2/9	−3d
C.P. Manganese	47/6	−1/6
Natal Navigation	5½	−⅛
Wankie	24/7½	−4½d
Witbank Colliery	3⅜	
CANADIAN MINES		
Dome	$32	−1
Hudson Bay Mining	$123	−2
International Nickel	$85½	−1⅛
Mining Corpn. of Canada	£7⅛	−⅛
Noranda	$175	+⅝
Quemont	£9½	
OIL		
Anglo-Iranian	5⅜XD	+⅛
Apex	48/9	+1/3
Attock	23/1½	−7½d
Burmah	63/1½	−7½d
Canadian Eagle Bearer	37/-	−9d
Mexican Eagle	27/4½	−1½d
Shell	4⅜	−⅛
Trinidad Leasehold	33/3	
T.P.D.	36/3	
Ultramar	35/7½	−10½d

Company News & Views

Canadian Gold Producers' Dates for Free Market Sales

On Saturday of last week, the Canadian Finance Minister, Mr. Douglas Abbott, announced that Canadian gold producers could begin selling gold on the free market on any one of three alternative dates.

Gold producers will have the choice of commencing selling on October 1, November 1 or December 1, and only the gold produced in 1951 after the date chosen, will be eligible for sale under the new arrangements. For those who elect to unload their gold production on the world's public markets for industrial and ornamental purposes, no assistance will be forthcoming under the Emergency Gold Mining Assistance Act.

When outlining the new arrangements, Mr. Abbott said that all participating producers will continue to ship rough gold to the Mint as before. However, the Mint will not buy this gold, but will assay and refine it on a Custom basis and store the fine gold content for the account of the producer, making appropriate charges for these services rendered as laid down in the regulations.

Sub Nigel's Results

The lower yield per ton, rather than the small decline in tonnage crushed, was the more damaging feature of the two shown in the operating results of Sub Nigel for the year to June 30, 1951.

Year to June 30	*Milled (tons)*	*Yield (oz.)*	*Grade (dwt.)*	*Profit per ton**	*Ore Reserves Tons*	*Dwt.*
				s. d.		
1951	796,000	296,196	7.4	50 1	1,915,000	8.4
1950	797,000	330,572	8.2	57 8	2,271,000	8.4

*Including sales of gold at premium prices.

This resulted in a decline in gold output of 34,376 oz., which loss together with the rise in working costs by 4s. 9d. to 46s. 3d. brought about a fall in working profit by £303,823 compared with the previous year. This figure might have been much worse save for the additional revenue of £144,502 received from the sales of gold on the free markets, which was equivalent to 3s. 7d. per ton milled, or 9s. 9d. per f.oz. produced.

Year to June 30	*Working Revenue*	*Working Costs*	*Tax*	*Net Profit*	*Dividend*	*Carry Forward*
	£	£	£	£	%	£
1951	3,836,078	1,840,635	1,007,536	1,017,254	110	—
1950	3,953,166	1,653,900	1,078,468	1,143,791	120	51,489

The company's policy of opening up old areas of the mine to assist in conserving ore reserve tonnage was continued during the year, but it is pointed out that since the main development has been virtually completed, ore reserves cannot be replenished at the rate at which they are being depleted. Development footage advanced during the year was satisfactory, and of the 38,235 ft. sampled, 34.2 per cent proved payable, averaging 9.7 dwt. per ton over 36.7 in.

Anglo-Vaal Agreement With SASOL

At the last annual meeting of the Anglo-Transvaal Consolidated Investments Co., the chairman, Mr. S. G. Menell, intimated that the company had agreed to transfer all its rights and options as well as all accumulated technical knowledge relating to an oil-from-coal project, to the South African Coal, Oil & Gas Corporation Ltd. (SASOL), which has been formed under Government sponsorship. The latest report and accounts covering the year to June 30, 1951, state that an agreement has now been reached with Sasol and that the company is to receive a consideration of £600,000 "on certain terms and conditions." One-third of this consideration, however, accrues to South African Torbanite Mining & Refining Co., which has been associated with Anglo-Vaal in this project. The directors add that of the total sum, £250,000 has been paid and the company's proportion set off against expenditure on the proposition.

The report and accounts for the year to June 30, 1951, show a fall in revenue from £874,828 to £673,326 and that after crediting £460,250 (nil) to share premium, deducting £355,577 (nil) written off shares and interest in other concerns, and taking into account all other charges, the balance was £716,060 against £820,360. To this amount was added £312,259 (£319,855) brought in, £58,990 (nil) being the expenditure referred to above previously written off the oil-from-coal project and now written back, and £3,478 (nil) arising from a prospecting venture, making £1,090,787 (£1,203,588 which included £63,373 from a subsidiary exploratory company).

The dividend was maintained at 50 per cent, absorbing £381,250 on the increased capital. Taxation required £107,000 (£180,000), general reserve received £50,000 (nil), and after meeting payments on the preference shares, there remained £388,865 compared with £312,259 to be carried forward.

The latest balance sheet reveals that the company's investments, at cost or less, totalled £5,109,220. Of this figure £4,954,653 represented the book list of its united investments, the market value of which at the end of June last was £5,535,918.

Amalgamated Tin's Heavy Tax Burden

The decline in tin ore production by 790 tons of Amalgamated Tin Mines of Nigeria for the year ended Mar. 31, 1951 was due to the cumulative effect of several factors. Yet in spite of the lower output and higher operating costs, the advance in the price of tin since the commencement of hostilities in Korea has enabled the company not only to overcome the adverse factors but also to show an increase in profits before tax from £746,455 to £1,684,116. But no less than 41 per cent of gross proceeds had to be paid out in respect of royalty and taxation—excluding a sum of £113,000 transferred to revenue reserves for royalty equalization. Even so net profit was up sharply and the dividend has in consequence been stepped up to 30 per cent against 20 per cent previously.

Year to Mar. 31	*Output Tin Conc. (tons)*	*Output Columbite (tons)*	*Sales Tin and Columbite*	*Net Profit**	*Dividend*	*Forward Balance*
			£	£	%	£
1951	4,280	217	3,461,695	628,116	30	202,806
1950	5,070	314	2,309,971	280,455	20	177,615

*After tax.

A considerable amount of prospecting was carried out during the year on the company's Exclusive Prospecting Licences, but no deposits were proved. However, investigations undertaken in the four Special Exclusive Prospecting Licences, two in the Northern Provinces and two in the Southern Provinces of Nigeria, gave mixed results. On two areas, indications were promising and further diamond drilling has been recommended, but on the other two S.E.P.L.s results were not promising, and have been allowed to lapse.

Financial results for the year were given in our issue of August 10 on page 147.

Beralt Tin & Wolfram's Excellent Results

The results of Beralt Tin & Wolfram for the year to March 31, given in a preliminary statement announcement, make comparison with the previous year's results appear ludicrous. After providing £29,562 (£12,000) for depreciation, the available gross balance amounted to no less than £892,294 compared with a mere £11,415. The burden of

taxation was immeasurably heavier at £534,251 against only £11,700. Even so there was ample cover for the final dividend of 60 per cent, which with the two interim payments makes a total of 100 per cent for the year. This required a total net amount of £175,016, as against £36,410 required to meet last year's single payment of 20 per cent. A balance of £187,660 (£14,633) was carried forward.

These excellent results were chiefly due to the steep rise in the price of wolfram currently selling at 525s. per unit compared with approximately 235s. a year ago and only 75s. at one time in 1949.

The outlook for the current year appears bright. Production has greatly improved and support for the present price level seems assured for the immediate future at least by virtue of the international allocation scheme. That the company feels happy about the current outlook is indicated by its payment of an interim dividend of 30 per cent in respect of the current year ending March 31, 1952, which compares with the 15 per cent paid for the previous year.

Company Shorts

Central Victoria Dredging: Monthly Inspections.—Monthly rather than fortnightly inspection of dredges has been decided upon by Central Victoria Dredging Company. This will mean that an additional four hours dredging time will be gained each month. Both of the company's dredges are operating satisfactorily.

South Witbank Coal Mines.—This company's coal mining revenue for the year ended June 30, 1951, was £144,750 compared with £95,674 it is announced in a preliminary statement. Net profit was £96,735. Two dividends aggregating 17½ per cent or 1s. 9d. per share were declared during the year requiring £73,937. The sum of £5,800 was placed to reserve and the forward balance was £36,404.

South African Torbanite Mining & Refining Co.—"Satmar's" report and accounts for the year ended June 25, 1951, has now been published. The directors in their report state that prospecting in the Ermeleo district continued and negotiations are nearing completion for the acquisition of further options over property in this area which is known to be underlain by torbanite. Financial results for the year were contained in our issue of September 21. The annual meeting will be held in Johannesburg on November 16. The chairman is Mr. S. G. Menell.

Tronoh-Malayan Tin Group Form New Prospecting Company.—With prospecting in Malaya practically at a standstill owing to terrorist activities, the Tronoh-Malayan Tin Group has formed a prospecting company to test for tin the sea bottom of an area at Tongkah, in Siam.

The name of the new company is Tromal Prospecting Ltd., and contribution to it is confined to the companies comprising the Tronoh-Malayan Tin Group. Prospecting licences have been obtained over an extensive area off the coast of Tongkah in Siam, adjoining an area which has been successfully worked by bucket dredges dredging the sea bottom. If payable values are found, it is stated, the ground may be worked by a grab dredge, but before this can be decided upon, the area must be first examined and proved. So far, prospecting has not advanced sufficiently for an opinion to be formed.

Pahang Pays 75 Per Cent.—Pahang Consolidated has announced the payment of a final dividend of 45 per cent on the Ordinary capital, making a total of 75 per cent for the year ended July 31, 1951, against 30 per cent for the previous year when the final distribution was 20 per cent. On the 7 per cent cumulative participating preference capital, the company has recommended the payment of a final dividend of 11½ per cent, making 15 per cent, or the same as for the previous year.

Profits before tax and other appropriations, including £22,500 dividend gross received from the Kuala Reman Rubber Estates was £1,237,583 compared with £446,789. Taxation required £667,034 and depreciation £53,287. An amount of £343,130 was placed to general and development reserve, the sum of £12,094 was written off investment in the subsidiary company, the Quala Reman Rubber Estates, and after bringing in £59,259, there was £221,297 available for distribution. Dividends absorbed £155,531, leaving £65,766 to be carried forward.

Mr. D. J. Ward is chairman. The report will be issued on November 21, and the annual meeting will be held on December 13.

American Anglo-Transvaal Investment Corporation.—This company, which was registered in South Africa in 1946, to develop mining and industrial enterprises in South Africa, has interests in various mining companies (Central Mining F.S. Areas, Merriespruit, Middle Wits, Rooderand, S.A. Mines Selection, Virginia) and an agreement with Anglo-Transvaal Consolidated Investment Co. whereby the two companies have undertaken to offer one another reciprocally, general and overall participations to a minimum of 33⅓ per cent in all business undertakings and ventures entered into by them, subject to certain specified exclusions. The company's present policy is to invest about two-thirds of its available funds in concerns engaged in developing and opening up new areas and enterprises, and thus it will be dependent for some time to come on the remaining one-third of its investment funds for current income.

During the year to June 30, 1951, in conjunction with Anglo-Transvaal Consolidated Investment Co. and its overseas associates, the company has been active in investigating base metal propositions in the Northern Transvaal and South-West Africa. In Northern Transvaal it acquired an option to exploit some claims in the vicinity of Gravelotte, Northern Transvaal, known as the Letaba copper and zinc proposition. Results so far give promise that profitable small-scale mining and concentrating operations can be carried out. In the same area the company has obtained an interest in the Duchen Gold Mine near Gravelotte, and in July last erected a flotation plant designed to treat 2,800 tons of sulphide ore per month. Production has commenced.

In the vicinity of Usakos, approximately 90 miles inland from Swakopmund, South-West Africa, the company acquired a participation in the right to prospect and purchase claims in a lead-zinc proposition. Additionally, the company acquired an interest in Harmony Lands & Minerals and also participated in the acquisition of the surface of two portions of La Riviera 289, which adjoin or form part of, the Harmony Gold Mining Co.

For the year ended June 30, 1951, net profit was £58,577 against £157,681. £50,000 (nil) was transferred to general reserve. Nil, against £100,000 was transferred to investment reserve, and the carry foward at the fiscal year end amounted to £75,560 against £70,512.

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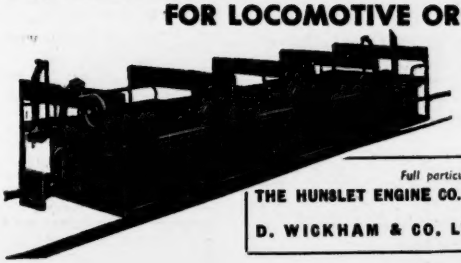

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Topical News in Brief

Conference on Tanganyika Coal and Iron Ore Deposits.—The Governor of Tanganyika, Sir Edward Twining, presided over a two-day conference to consider the implications of the Colonial Development Corporation's successful investigation of coal deposits in south-west Tanganyika (see *The Mining Journal*, October 26). The conference was informed that Swedish smelting tests on iron ore found near the coalfields were also successful.

E.C.A. Aid for Rhodesian Asbestos Mines.—The Economic Co-operation Administration has recently undertaken to finance a development and exploitation programme at three Rhodesian asbestos mines. The companies concerned are: Selected Mines and Marketing (Rhodesia) Ltd., Asbestos Mining Group (Rhodesia) Ltd., Associated Asbestos Mines Ltd., and Shambra Asbestos Ltd. It is understood that this is the first time that the E.C.A. has granted financial aid to a Southern African company mining asbestos fibre exclusively. The agreement is in force until the end of 1953, and the mines concerned are in the Shabani, Belingwe, and Shangani districts. Extensive planning for expansion has been made. It is hoped to start during November with geological surveys, which will be followed by drilling programmes to prove the areas.

£6,000,000 Contract Awarded to British Firm.—Balfour, Beatty & Co., Ltd. have been awarded the first contract, amounting to approximately £6,000,000, for the construction of the Wadi Tharthar Project in Iraq by the Development Board acting on behalf of the Government of Iraq. This project, which is a flood relief of the river Tigris at Samara, diverts the flood waters into the Wadi Tharthar depression, and the first contract consists of the construction of a canal 64 kilometres in length and entails the excavation of 35 million cubic metres of material. Messrs. Coode, Vaughan-Lee, Frank and Gwyther are the Consulting Engineers. This is the first of a series of major projects adopted by the Iraq Government in their programme for the development of the country and the raising of the standard of living of the people. Finance for these projects will be available from the oil revenues, estimated to reach a figure of over £50,000,000 per annum after 1954.

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TRONOH MINES

MR. J. H. RICH ON TIN PRICES

The Forty-Ninth Annual General Meeting of Tronoh Mines, Ltd., was held on November 1 at 73, Cheapside, London, E.C., **Mr. J. H. Rich,** Chairman of the Company, presiding.

The following are extracts from the statement of the Chairman which was circulated to the Members:—

There is a shortage of mining labour in Malaya. Amongst the reasons might be mentioned the attraction of the profits made by those tapping on small rubber estates and the high wages offered to semi-skilled employees by building contractors.

Despite the official optimistic statements made from time to time, security conditions in Malaya do not appear to have undergone any appreciable change since our last meeting. The regrouping of mine labour is one of the additional measures of dealing with the bandit threat. Under this, all mine labour has to be removed and rehoused in selected areas which are encircled with barbed wire and with police guards mounted and a nightly curfew imposed.

AMERICAN ATTITUDE

Prominence has been given to attacks by American interests on the tin producers and in particular Malayan producers. Amongst other inaccuracies is the accusation that tin producers were "gouging" the U.S.A. regarding price. One result of these attacks was that the American Government refrained from buying in the open market and restricted the consumers' requirements by 20 per cent. of their consumption for the first half of 1950.

It is not a question of what the U.S.A. or anyone else considers a fair price, but it boils down to the simple question —is the tin required? If so, then the price must be such that the necessary tin will be forthcoming. So far as tin production in Malaya is concerned, there are some 80 dredges now in operation. Pre-war, there were over 100. With this decrease in the number of operating dredges and the likelihood of no further appreciable increase in the future, the output from this source not only shows a substantial decrease as compared with pre-war but the possibility of any improvement in the future is extremely remote.

Production from Chinese sources, on the other hand, shows an increase as compared with pre-war, but the cost of at least a large part of the Chinese production is higher than the production from dredging, and if the production of tin from Malaya is to be increased or even maintained, a remunerative price must be paid to keep marginal producers in production.

The only sound policy to pursue is to let the free market decide the price. If production exceeds consumption the price will fall and if the reverse were the case the price would rise until marginal producers came in to adjust the position. And the U.S.A., by following an intelligent buying programme, could obtain the metal without causing such violent fluctuations as have recently been experienced.

The U.S.A. appears to be obsessed with the idea that the sums she has spent on buying tin have inordinately swelled the profits of the producers. But something far more vital than mere profits to producers is involved. The U.S.A. does not appear to realise that Malaya is a bastion in S.E. Asia, putting up a fierce and costly struggle against Communism.

EFFECT OF GOVERNMENT'S POLICIES

It is not properly realised at home how the policies of the British Government, such as the recognition of the Communist Government in China, and the recent capitulation in Persia, have direct repercussions in Malaya. In view of the repeated assurances of Ministers that it was the Government's intention that the representatives of our oil interests would remain in Abadan, our withdrawal in face of Persian pressure is bound to have far-reaching effects in Malaya. One of these effects is to raise doubts as to the degree of reliance that can be placed upon the then Prime Minister's statement in March, 1950, that there was no intention of a premature withdrawal from Malaya.

The statement of March 1950 laid down that the purpose of His Majesty's Government's policy was to guide the citizens of Malaya and Singapore to responsible self-government *within the Commonwealth*. The words in italics find no place in the resolution or in the stated intentions of the new Independence of Malaya Party. As it appears that the policy of the U.K. Government and the aims of the new political party in Malaya may not be identical, an unequivocal declaration and one which can be relied upon is required from the British Government, making it abundantly clear that self-government will only be granted when the development and progress of the peoples of Malaya show without doubt that they are fitted for it and that when self-governing, Malaya will still remain within the Commonwealth. Meanwhile first things must come first, and the great urgency is to resolve the emergency and the terrorist problem so that the necessary development can proceed in settled and peaceful conditions.

The report and accounts were adopted.

NATIONAL MINING CORPORATION

IMPROVED FINANCIAL POSITION

MAJOR-GENERAL W. W. RICHARDS' SPEECH

The annual general meeting of The National Mining Corporation, Ltd., was held on October 29 at the Chartered Insurance Institute, 20 Aldermanbury, London, E.C.

Major-General W. W. Richards, C.B., C.B.E., M.C., chairman of the company, presided.

The Chairman said: My review, and the directors' report, deal fully with the position of the company as at March 31, 1951. I said in my review that I believed members would agree a great deal of progress had been made towards improving the financial position of the company.

I am sure you would like to know how we stand now, and I am pleased to tell you that the position has further improved since the date of the balance-sheet.

QUOTED INVESTMENTS

Mainly due to the rise in the price of the shares of Premier Consolidated Oilfields, Ltd., our quoted investments with a book value of £260,000 have a present market value of £370,000. We have widened the scope of our investments and will continue to do so as finances permit. Emphasis will be on revenue-bearing investments as well as those likely to show capital appreciation.

DISPOSAL OF SURPLUS EQUIPMENT

We are continuing to dispose of surplus plant, equipment, etc., in Trinidad as opportunity offers, and since the beginning of the current financial year have realized a further £8,750 in this way.

INCOME AND EXPENDITURE

Our dividend income has been substantially improved by the dividend of 12½ per cent. received on our holding of shares in the Premier company, amounting to £13,500 gross.

On the other side of the account, expenditure has been and is being considerably reduced following the cessation of our operations in Trinidad and the transfer of assets to the Premier company. In this connection, I would remind you that the expenditure shown in the accounts before you cover a period of 15 months instead of the usual 12 months. The reasons for changing the accountancy period have already been explained.

INTERESTS

I will now refer to our two main interests, Premier Consolidated Oilfields, Ltd., and Mines Development Syndicate (West Africa), Ltd.

PREMIER CONSOLIDATED OILFIELDS, LTD.

I would emphasize that the outstanding improvement in the fortunes of the Premier company endorses the strong support your Board gave to the amalgamation of the various oil interests in Trinidad.

As you are aware, the accounts of the amalgamated company for the first 15 months ended March 31, 1951, revealed a trading profit of £99,033, and an additional non-recurring receipt of £60,683 in respect of oil sold during previous years. A dividend of 12½ per cent. was paid and £75,000 allocated to reserve, leaving a balance of unappropriated profit carried forward of £47,792. The balance-sheet shows a strong financial position.

I understand the income from the sale of the production of crude oil is being maintained, and that the financial position of the company has improved during the current year.

MINES DEVELOPMENT SYNDICATE (WEST AFRICA), LTD.

With regard to our interest in Southern Nigeria, I would inform you that the American Smelting and Refining Company are vigorously continuing their extensive programme of exploration with satisfactory results.

The report and accounts were adopted.

BORING. Foreman Supervisor to take charge of Percussion Boring, Diamond Drilling and similar Boring work in the United Kingdom and Abroad. Applicants must be thoroughly conversant with all types of Percussion Boring and Diamond Drilling plant and their operation, and be willing to travel extensively in the United Kingdom. Vacancies also are available for trained Percussion Borers to take charge of Percussion Boring Rigs. Write, stating salary required to George Wimpey & Co. Ltd., Central Laboratory, Lancaster Road, Southall, Middlesex.

ROSTERMAN GOLD MINES

The Sixteenth Annual General Meeting of Rosterman Gold Mines, Ltd., was held on October 30th at Winchester House, E.C.2.

Capt. A. H. Moreing, Assoc. Inst. C.E., Chairman of the Company who presided, in the course of his speech said:—

The current assets total £99,621 against £90,871 for 1949 whilst the current liabilities are £7,771 against £9,122. The gold in hand and cash at bank total £54,485 compared with £26,266 for the preceding year.

The quantity of ore treated during the year, viz., 42,195 tons, against 33,080 for 1949, showed an increase of 27 per cent., whereas the total expenditure amounted to £139,433 against £126,592—an increase of only 10 per cent.

The treatment expenditure shows an increase of £11,626 compared with the previous year and this is accounted for by the increased cost of stores and the higher tonnages treated.

Development work, details of which are given in the General Manager's Report, has been carried out during the year under review mainly on No. 5 Footwall Reef. This reef is well defined but unfortunately does not, except at one or two sporadic points, carry payable values.

Recently we have had the benefit of a visit by Dr. Huddleston, of the Kenya Geological Survey. Dr. Huddleston has suggested that a diamond drill borehole be put down to ascertain whether the solid diorite extends towards the Western terminal shear and the Manager has been instructed to investigate this point in detail.

As I told you in my speech last year the Directors were of the opinion that, for the reasons then given, the Company should look for another property and our Consulting Engineers were so instructed. Several gold mining propositions have been considered but, in all cases, the purchase price asked has been much higher than the prospects, in their present stage of development, appeared to justify.

The Board has considered the question of making an application to the Government of Uganda for a Special Exclusive Prospecting Licence over an area of about 50 square miles in the South Kigezi district extending to the border of the Belgian Congo. According to reports the Belgians are operating a Wolfram Mine not far over the border which is producing a substantial tonnage of ore and there is every reason to believe that the area which it has been suggested we might apply for is, geologically, favourable to the occurrence of wolfram deposits. After careful consideration the Directors made an application for a Special Exclusive Prospecting Licence over this area and we are awaiting the Uganda Government's decision. Should this application be granted the Directors have no hesitation in recommending that the Company should proceed in exploring the area.

As you know, wolfram is in urgent demand and contracts for the sale of the ore for several years ahead can be made.

The Report and Accounts were adopted.

W. E. SINCLAIR, M.I.M.M.
Consulting Mining Engineer
South & East Africa & Rhodesia
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ANGLO-TRANSVAAL CONSOLIDATED INVESTMENT CO. LIMITED

Mining Companies' Directors' Reports for Quarter ended 30th September, 1951

Following are the reports on work done during the Quarter ended 30th September, 1951

RAND LEASES (VOGELSTRUISFONTEIN) GOLD MINING COMPANY, LIMITED

PRODUCTION

Tons crushed: **553,000** yielding **92,259** ounces fine.		Per ton crushed	
Revenue from Gold	**£1,145,165**	**41s. 5d.**	
Working Costs	**£894,906**	**32s. 4d.**	**(194s. 0d.** per oz. fine)
	£250,259	**9s. 1d.**	
Sundry Revenue	**£10,500**	**4d.**	
Working Profit for Quarter	**£260,759**	**9s. 5d.**	

Working Costs per ton, **32s. 4d.** include **4s. 7d.** per ton in respect of development expenditure.

In addition to the above revenue, **£55,026** accrued in respect of increased revenue from the sales of gold at higher than standard prices, sold for manufacturing purposes during the three months, July to September, 1951, inclusive.

The Working Profit for the Quarter, as shown above, does not take into consideration the amount, estimated at **£114,500** for the Quarter, payable to the Government in Taxation and as its share of the Profits in terms of the Mining Lease.

CAPITAL EXPENDITURE—The Expenditure on Capital Account for the Quarter amounted to **£65,592.**

SHAFT SINKING

No. 11A SUBVERTICAL SHAFT was sunk **373** feet during the Quarter to a total depth of **2,799** feet. In addition **52** feet of station cutting were advanced on the **36th** level, and a total of **22,680** cubic feet of station cutting were excavated on the **30th, 32nd, 35th** and **36th** levels. The shaft was concrete lined to a depth of **2,763** feet, of which **350** feet were accomplished during the Quarter.

No. 2 KIMBERLEY REEF INCLINE SHAFT—**141** feet were sliped to full dimensions, and the concrete collar of the shaft was built up **12** feet above ground level.

DEVELOPMENT

MAIN REEF SERIES—**14,161** feet of development and shaft sinking were accomplished, of which **6,430** feet were sampled, showing **3,515** feet, equal to **55** per cent, as payable at an average value of **11.79** dwts., over an average channel width of **20.4** inches, equivalent to **241** inch-dwts. Payable reef disclosures were distributed as follows:—

SOUTH REEF—Of **640** feet sampled, **405** feet, equal to **63** per cent, were payable at an average value of **35.94** dwts., over an average channel width of **9.1** inches, equivalent to **326** inch-dwts.

MAIN REEF LEADER—Of **3,425** feet sampled, **1,945** feet, equal to **57** per cent, were payable at an average value of **16.23** dwts., over an average channel width of **15.2** inches, equivalent to **246** inch-dwts.

MAIN REEF—Of **2,365** feet sampled, **1,165** feet, equal to **49** per cent, were payable at an average value of **6.11** dwts., over an average channel width of **33.2** inches, equivalent to **203** inch-dwts.

BIRD AND KIMBERLEY REEFS—In addition to the above footage on Main Reef Series, **489** feet were advanced on Bird Reef and **3,047** feet on Kimberley Reef. Payable reef disclosures were as follows:—

BIRD REEF—Of **320** feet sampled, **30** feet, equal to **9** per cent, were payable at an average value of **3.21** dwt., over an average channel width of **38.0** inches, equivalent to **122** inch-dwts.

KIMBERLEY REEF—Of **2,105** feet sampled, **745** feet, equal to **35** per cent, were payable at an average value of **7.15** dwts., over an average channel width of **25.1** inches, equivalent to **176** inch-dwts. (The above results are based on actual sampling. No allowance has been made for adjustments necessary in the valuation of the corresponding Ore Reserve.)

VILLAGE MAIN REEF GOLD MINING COMPANY (1934), LIMITED

PRODUCTION

Tons Treated: **102,650** yielding **15,864** ounces fine.		Per ton treated	
Revenue from Gold	**£157,423**	**38s. 6d.**	
Working Costs	**£142,727**	**27s. 10d.**	**(179s. 11d.** per ounce fine)
Working Profit for Quarter	**£54,696**	**10s. 8d.**	

Working Costs per ton **27s. 10d.** include **5s. 3d.** in respect of development expenditure.

In addition to the above revenue, **£9,798** accrued in respect of increased revenue from the sales of gold at higher than standard prices, sold for manufacturing purposes during the three months July to September, 1951, inclusive.

The Working Profit for the Quarter, as shown above, does not take into consideration interest on Loans amounting to **£510** for the Quarter, nor the further amount payable to the Government in Mining Taxation, estimated at **£29,500** for the Quarter.

CAPITAL EXPENDITURE—Nil.

DEVELOPMENT

7,331 feet of development were advanced during the Quarter, and **3,476** feet of old drives and crosscuts were reconditioned. In addition, **595** feet of underground diamond drilling were done as an aid to development.

MIDDLE WITWATERSRAND (WESTERN AREAS), LIMITED

INTERESTS IN THE ORANGE FREE STATE

MINERAL RIGHTS—Your Company's interests in the Orange Free State consist of Mineral Rights purchased over **12,099** morgen in the Virginia Area; the entire farm Van den Heeversrust No. 419, measuring **629** morgen, situate North-West of Odendaalsrus, and over a one-half undivided share of the farm Remaining Extent Wesselsgunst No. 261, measuring **58** morgen, **1½** square roods, situate immediately North of the Freddies North Lease Area, Limited. During the Quarter your Company exercised its option to purchase the Mineral Rights of the farms Klein Begin No. 911, measuring **129** morgen, which adjoins the Western boundary of the Freddies North Lease Area, Limited, and Stephanus Rust No. 897, measuring **209** morgen, situate West of Odendaalsrus. Your Company retains its interest in Option contracts over the farm Britzpan No. 1289, district Odendaalsrus, measuring **229** morgen; over **1,175** morgen in the Winburg district, and a participation in subscription rights accruing to Lydenburg Estates, Limited, in respect of certain of that Company's interests in the Orange Free State.

SURFACE RIGHTS—During the Quarter your Company purchased a further undivided three-sevenths share of the surface of Van denHeeversrust No. 419 and now owns a total area of **5,405** morgen in the Virginia Area and in the Area North-West of Odendaalsrus.

INTERESTS IN THE KLERKSDORP DISTRICT OF THE TRANSVAAL

Your Company has exercised its option to purchase the Mineral Rights of the Eastern Portion of the Klerksdorp Townlands, measuring **4,557** morgen approximately, and owns a **98.4** per cent share of the Mineral Rights of a portion of the farm Elandsheuvel No. **54**, district Klerksdorp, measuring **254** morgen, **375** square roods.

During the Quarter your Company acquired options to purchase the surface and mineral rights of certain portions of the farm Palmietfontein No. 29, district Klerksdorp, totalling **1,186** morgen, approximately.

REPORT FOR QUARTER ENDED 30th SEPTEMBER, 1951. A total of **3,786** feet was drilled in **4** boreholes.

Borehole No.	Drilled on joint account with	Farm	Depth at 30th September, 1951 Feet	Formations traversed during Quarter: Borehole Depths (feet) From	To	Description	Reef	Reefs intersected: Depth feet	Value dwts.	Corrected width inches	Inch-dwts.	Remarks
VDH. 4a/50	General Exploration Orange Free State, Limited	Van den Heeversrust No. 419, District Odendaalsrus	Deflections completed on 25th August, 1951				Basal	6,038	21.1	4.3	91	1st Deflection. Core recovery nearly complete
							Basal	6,036	6.8	5.2	35	2nd Deflection. Core recovery complete
VDH. 5/51	General Exploration Orange Free State, Limited	Van den Heeversrust No. 419, District Odendaalsrus	6,550 Original borehole completed on 6th September, 1951. Deflections are in progress	5,055 5,459	5,459 6,550	Ventersdorp Sediments Witwatersrand Sediments	Upper	5,312	1.05	86.0	89	
							"A" Reef	5,574	4.53	118.2	535	Core recovery nearly complete
							"B" Reef	5,819	19.46	19.6	381	Core recovery nearly complete
							Leader	6,329	0.98	16.4	16	
							Basal	6,427	127.8	24.5	3,131	Original borehole
							Basal	6,427	0.69	22.5	16	1st Deflection
							Basal	6,426	3.84	24.5	94	2nd Deflection
												Core recovery of the Basal Reef was complete in all three intersections, but the stratigraphic section exposed in the original borehole was not comparable with that revealed by the 1st and 2nd Deflections
VDH. 6/51	General Exploration Orange Free State, Limited	Van den Heeversrust No. 419, District Odendaalsrus	4,930 In Progress	3,090 3,912	3,912 4,930	Ventersdorp Lava Ventersdorp Sediments	Upper	4,343	18.47	20.3	375	
							Upper	4,349	8.73	34.8	304	
T.L. 29/51		Klerksdorp Townlands No. 44, District Klerksdorp	5,650 In Progress	2,654 4,728	4,728 5,650	Ventersdorp Lava Gold Estates quartzites and conglomerates						

In addition, the Company is participating in the drilling of the following boreholes in the Orange Free State:—

Borehole Number	Farm	Drilled by
RD.1 (Formerly BH.1)	Rosedale No. 898, District Odendaalsrus	General Exploration, Orange Free State, Limited
LR.6	La Riviera No. 289 (Portion 4), District Ventersburg	New Consolidated, Free State Exploration Company, Limited
LR.7	La Riviera No. 289 (Portion 2), District Ventersburg	New Consolidated, Free State Exploration Company, Limited
WN.5	Weltevreden No. 205, District Odendaalsrus	General Exploration, Orange Free State, Limited
WN.6	Weltevreden No. 205, District Odendaalsrus	General Exploration, Orange Free State, Limited
SB.2 (Formerly BH.2)	Spes Bona No. 921, District Odendaalsrus	General Exploration, Orange Free State, Limited

DRILLING IN THE STILFONTEIN-HARTEBEESTFONTEIN AREA (LUCAS BLOCK)

During the Quarter ended 30th September, 1951, a total of **9,200** feet was drilled on joint account with Strathmore Development Company, Limited, in the following **7** boreholes: HB.18, HB.19, HB.20, BU.3, BU.4, BU.5, WI.2. Of these boreholes, HB.18, HB.19 HB.20 and BU.3 were completed during the Quarter. The results obtained in borehole BU.3 were published in the report for the Quarter ended 30th June, 1951.

The following are results of assays of Vaal Reef intersections, during this period, as previously published:

Borehole Number	Depth (Feet)	Value (Dwts.)	Corrected Width (Inches)	Inch-Dwts.	Remarks
HB.18	5,905	3.5	5.6	20	4th Deflection. Faulted remnant of Vaal Reef.
	5,902	60.45	11.2	677	8th Deflection. Reef recovery complete. Core recovery nearly coplete. Vaal Reef was eliminated by faulting n the original borehole and in six other deflections.
HB.19	—	—	—	—	Vaal Reef eliminated by faulting.
HB.20	4,066	0.85	11.4	10	Original borehole.)
	4,067	3.8	8.1	31	1st Deflection.) Incomplete core recovery.
	4,066	17.6	8.5	150	2nd Deflection.)
	4,066	41.5	8.5	353	3rd Deflection. Core recovery nearly complete.

NEW KLERKSDORP GOLD ESTATES, LIMITED

Tons Milled: **28,680** yielding **3,394.35** ounces fine.

Revenue from Gold	**£42,132**
Working Costs	**£38,402**
	£3,730
Sundry Revenue	**£243**
Working Profit for Quarter	**£3,973**
Working Costs per ton Milled	**26s. 9d.**
Working Costs per fine ounce recovered	**226s. 3d.**

In addition to the above revenue, **£1,551** accrued in respect of increased revenue from sales of gold at higher than standard prices, sold for manufacturing purposes, during the three months July to September, 1951, inclusive. The Working Profit for the Quarter, as shown above, does not take into consideration interests on loan, amounting to **£1,038** for the Quarter.

No liability was incurred for Mining Taxation payable to the Government in respect of the Profits earned for the Quarter.

CAPITAL EXPENDITURE—The expenditure on Capital Account for the Quarter amounted to **£5,649.**

DEVELOPMENT

The total footage advanced during the Quarter amounted to **1,779** feet. Of **1,220** feet sampled, **880** feet, equal to **72.13** per cent, proved payable at an average value of **4.08** dwts., over an estimated stoping width of **42** inches, equivalent to **171** inch-dwts. (The above results are based on actual sampling. No allowance has been made for adjustments necessary in the valuation of the corresponding Ore Reserve.)

VIRGINIA ORANGE FREE STATE GOLD MINING COMPANY, LIMITED

SHAFT SINKING

No. 1 VERTICAL SHAFT was sunk **417** feet during the quarter to a total depth of **3,038** feet. The formation traversed was Ventersdorp Sediments. In addition, a pump station, at a depth of **2,836** feet, was excavated and equipped. The shaft was concrete lined to a depth of **2,973** feet, of which **357** feet were accomplished during the Quarter.

No. 2 VERTICAL SHAFT was sunk **364** feet during the Quarter to a total depth of **2,824** feet. The formations traversed were Ventersdorp Sediments to a depth of **2,799** feet and Upper Witwatersrand Sediments from this depth. The shaft was concrete lined to a depth of **2,786** feet, of which **337** feet were accomplished during the Quarter.

The intersection in pilot holes of water-bearing fissures, requiring cementation, considerably delayed sinking operations in both No. **1** and No. **2** Shafts.

No. 3 VERTICAL SHAFT was sunk **197** feet during the Quarter to its final depth of **1,754** feet. The formation traversed was Witwatersrand Sediments. The shaft was concrete lined to its final depth, **214** feet being accomplished during the Quarter. The intersection in pilot holes of water-bearing fissures, requiring cementation, delayed the rate of sinking.

Shaft sinking operations were completed in July, 1951, and preparations for development at this shaft were commenced. Excavations for the 1st Level Main Station, loading station and sump were completed during the Quarter.

DEVELOPMENT AT NO. 3 SHAFT

During August, 1951, development at No. **3** Shaft was commenced on the No. **1** Level, on a horizon **1,538** feet below the collar of the shaft and on the Ventilation Level, **1,506** feet below the collar.

A total of **873** feet were advanced during the Quarter, of which **401** feet, in connection with the station layout, were in country rock, and **472** feet were advanced on the reef occupying the horizon of the Leader-Basal Group. Of the footage on reef, **465** feet were sampled, of which **110** feet, equal to **23.7** per cent, were classed as payable, having an average value of **6.48** dwts., over a channel width of **33** inches, equivalent to **214** inch-dwts.

(The above results are based on actual sampling. No allowance has been made for adjustments necessary in the valuation of the corresponding Ore Reserve.)

SHAFT EQUIPMENT

No. 1 SHAFT—The installation of the second 750 H.P. Fulton Winder was completed during the quarter and progress was made on the erection of the permanent headgear. The construction of the pre-cast reinforced concrete buntons has been completed.

No. 3 SHAFT—Work has been commenced at the headgear on the change-over to the permanent hoisting arrangements and on the construction of the headgear bin.

REDUCTION PLANT

Work has been commenced on the construction of the first unit of the Reduction Plant for both the Virginia and Merriespruit Mines, on a site in the vicinity of No. **1** Shaft, Virginia.

Each of the units has a nominal capacity of **25,000** tons per month and the two units are so arranged that full benefit can be derived from joint supervision and housing. Also, the arrangement permits of the use of both units for treating ore from either mine during the initial stages of production. Satisfactory progress is being made with the construction programme.

HOUSING AND AMENITIES FOR EUROPEAN EMPLOYEES

At the end of the Quarter, **104** houses in the permanent quarters and the second additional block of single quarters were completed and occupied. In addition, **38** houses were under construction. Progress has been made with the building of "M" type cottages on Adrianasrust; **68** of these cottages are occupied and a further **14** are under construction.

74 persons are accommodated in the permanent single quarters and **17** families are occupying two-roomed flats which have become available by the conversion of the original single quarters, **98** persons are accommodated in temporary quarters.

A number of employees of the Merriespruit Mines are accommodated at Virginia.

The filter plant at the swimming bath has been installed and the bath and the children's pool are now in use. A squash court has been completed.

NATIVE COMPOUNDS

At the end of the Quarter **1,620** Natives were housed in the permanent Compounds and building work on extensions is proceeding. Contractors' natives are accommodated in temporary compounds.

OFFICES AND BUILDINGS

The Assay Office building has been completed and mine samples are now being assayed at the mine.

Extensions in hand to the Native Hospital are nearing completion.

WATER SUPPLY

Two additional boreholes in the vicinity of the Sand River Pumping Plant were completed during the Quarter. A supply of water amounting to approximately **4,938,000** gallons per month is being obtained from this source. In addition, approximately **1,679,000** gallons per month of Irrigation Department water pumped from the Vaal River is being used as a supplementary supply. The erection of the prefabricated concrete reservoir in the residential area was completed during the Quarter.

POWER SUPPLY

Electrical and Compressed Air supplies functioned satisfactorily during the Quarter. Work is proceeding on the extension to the Compressor House.

STONE CRUSHER PLANT

12,250 cubic yards of crushed stone for concrete making were produced during the Quarter from rock hoisted at No. **1** Shaft. A proportion of the output is being supplied to the Merriespruit Mine for concrete work, and to contractors for road making on the property. In addition, **202,150** concrete bricks were made during the Quarter.

GENERAL—Work is proceeding on the tarred road between Nos. **1, 2** and **3** Shafts.

LABOUR—The labour strength at the end of the Quarter ewas: Europans **256**; Natives **1,626.**

CAPITAL EXPENDITURE

Capital Expenditure amounting to **£591,741** was incurred during the Quarter on shaft sinking, buildings and plant. Of this amount, **£176,319** was apportioned to Merriespruit (Orange Free State) Gold Mining Company, Limited, in respect of joint Capital Expenditure.

The total Capital Expenditure, including preliminary expenses, incurred to 30th September, 1951, amounted to **£3,108,909.**

MERRIESPRUIT (ORANGE FREE STATE) GOLD MINING COMPANY, LIMITED

SHAFT SINKING

No. 1 VERTICAL SHAFT was sunk **464** feet during the Quarter to a total depth of **1,937** feet. The shaft passed from Ventersdorp Lava into the Ventersdorp Sediments at a depth of **1,775** feet. In addition, a pump station, at a depth of **1,864** feet, was excavated and equipped. The shaft was concrete lined to a total depth of **1,892** feet, of which **425**feet were accomplished during the Quarter. The intersection in pilot holes of water bearing fissures, requiring cementation, considerably delayed shaft sinking operations during the Quarter.

No. 2 VERTICAL SHAFT: No sinking work was done during the Quarter, the shaft depth remaining **97** feet, of which **93** feet are lined.

SHAFT EQUIPMENT

Precast reinforced concrete buntons for the equipping of No. **1** Shaft are being made at the Virginia Mine.

REDUCTION PLANT

Work has been commenced on the construction of the first unit of the Reduction Plant for both the Merriespruit and Virginia Mines on a site in the vicinity of No. **1** Shaft, Virginia. Each of the units has a nominal capacity of **25,000** tons per month and the two units are so arranged that full benefit can be derived from joint supervision and housing.

Also, the arrangement permits of the use of both units for treating ore from either mine during the initial stages of production. Satisfactory progress is being made with the construction programme.

WATER SUPPLY—An adequate water supply is bein obtained from boreholes sunk on the property.

POWER SUPPLY—The Electrical and Compressed Air supplies functioned satisfactorily during the Quarter.

LABOUR AND HOUSING—The labour strength at the end of the Quarter was: European **53**; Natives **519.**

A number of European employees are being accommodated at the Virginia Mine. At the end of the Quarter, **513** Natives were housed in the permanent compound at No. **1** Shaft.

CAPITAL EXPENDITURE

Capital Expenditure amounting to **£268,322** was incurred during the Quarter on shaft sinking, buildings and plant. This amount includes **£176,319** incurred by Virginia Orange Free State Gold Mining Company, Limited, on Joint Capital Expenditure.

The total Capital Expenditure, including preliminary expenses, incurred to 30th September, 1951, amounted to **£1,913,576**.

ANGLO-TRANSVAAL COLLIERIES, LIMITED

The Sales Output of the Subsidiary Collieries controlled by this Company for the Quarter ended 30th September, 1951, totalled **277,949** tons.

September Miscellaneous Mine Returns

Gold

WEST AFRICA

Amalgamated Banket.—58,960 tons yielded 8,683 oz.; profit £27,934.
Ariston.—28,460 tons yielded £107,384; profit £34,450.
Ashanti.—19,500 tons yielded 15,427 oz.; profit £154,146.
Bibiani.—30,000 tons yielded 6,034 oz.; profit £12,656.
Bremang.—560,300 cu. yd. dredged yielded 3,453 oz.; profit £17,737.
Gold Coast M.R.—8,988 tons yielded 3,261 oz.; profit £12,958.
Konongo.—1,920 tons yielded 2,240 oz.; profit £9,690.
Marlu.—38,140 tons yielded 3,162 oz.; profit £2,869.
Nanwa.—4,100 tons yielded 924½ oz.
Taquah.—20,000 tons yielded 4,749 oz.; profit £156.

INDIA

Champion.—14,180 tons yielded 6,059 oz.
Mysore.—15,300 tons yielded 5,503 oz.
Nundydroog.—20,375 tons yielded 4,451 oz.
Ooregum.—10,935 tons yielded 2,554 oz.

AUSTRALIA

Boulder Pers.—(Sept. 12-Oct. 9) 11,070 tons yielded 2,708 oz.
Central Norseman.—(Sept. 12-Oct. 9) 11,340 tons yielded 4,165 oz.
Central Victoria.—(Sept. 12-Oct. 9) 272,729 cu. yd. dredged yielded 1,225 oz.
Croesus Prop.—(Aug. 15-Sept. 11) 6,834 tons yielded 1,358 oz.
Gold Mines of Kalgoorlie.—(Sept. 12-Oct. 9) 13,873 tons yielded 3,973 oz.
Gt. Boulder.—87,464 tons yielded 21,515 oz., valued at £A.336,213.
Harrietville Tronoh.—(Sept. 23-Oct. 30) 181,200 cu. yd. dredged yielded 439 oz., value £A6,575.
Kalgoorlie Enterprise.—(Sept. 12-Oct. 9) 4,693 tons yielded 1,397 oz.
Kalgurlie Ore.—(Aug. 15-Sept. 11) 11,490 tons yielded 2,496 oz.
Lake George.—(Aug. 27-Sept. 23) 14,505 tons yielded 1,073 tons lead conc., 1,969 tons zinc conc., 340 tons copper conc.
Lake View and Star.—50,002 tons of ore and 50,502 tons tailings yielded 11,145 oz.
Morning Star.—(G.M.A.) (Sept. 12-Oct. 9) 1,501 tons yielded 588 oz.
Mount Morgan.—(Aug. 27-Sept. 23) 197,716 tons yielded 4,723 oz. gold; 472 oz. silver.
New Coolgardie.—(Sept. 12-Oct. 9) 4,354 tons yielded 1,753 oz.
Sons of Gwalia.—(Aug. 15-Sept. 11) 6,010 tons yielded 1,626 oz.
South Kalguri.—(Sept. 12-Oct. 9) 8,062 tons yielded 1,738 oz.

MISCELLANEOUS

Brit. Guiana Cons.—134,509 cu. yd. dredged yielding 2,337 oz.
Cam & Motor.—20,000 tons yielded £60,019, profit £24,937.
Clutha.—(Sept. 15-Oct. 12) dredge worked 489 hours yielding 514 oz.
Frontino.—10,166 tons yielded 5,416 oz.
Kentan (Geita).—16,000 tons yielded 2,283 oz.
Martha.—(20 days to Oct. 6) 6,458 tons yielded 1,589 oz. gold, 10,091 oz. silver.
Motapa.—23,300 tons yielded 2,386 oz.; profit £3,201.
Rezende.—6,400 tons yielded £13,343; profit £862.
Rhodesian Corporation Fred Mine.—3,750 tons yielded 606 oz.; profit £238.
Rosterman.—1,826 tons yielded 1,029 oz.; profit £12,796.
St. John D'el Rey.—33,200 tons; value of output £226,808.
Sherwood Star.—2,465 tons yielded £1,984; profit £740.

Tin

MALAYA

Ampat.—106 tons tin conc.
Batu Selangor.—34½ tons tin conc.
Berjuntai.—33½ tons tin conc.
Ipoh.—18 tons.
Jelapang.—22 tons tin conc.
Kampong Lanjut.—18½ tons tin conc.
Kamunting.—190 tons tin conc.; dredge closed Sept. 6-9 for repairs.
Kinta Kellas.—22 tons tin.
Kinta Tin.—25½ tons.
Klang River.—30½ tons tin conc.
Kramat Tin.—29¼ tons tin conc.
Kuala Kampar.—193½ tons tin conc.; (dredge No. 1 repaired Sept. 1-5).
Kuchai.—72 tons tin conc.
Larut.—47½ tons tin conc.; (No. 5 dredge closed 2-14 Sept. for repairs).
Lower Perak.—63½ tons tin conc.
Malaysiam.—4.4 tons tin conc.
Pahang.—240 tons tin conc.
Rahman.—48½ tons ore.
Rantau.—67¼ tons tin conc.
Rawang Conc.—57¾ tons tin conc.
Rawang Tin.—89½ tons tin conc.
Renong.—78 tons.
Southern Kinta.—254½ tons tin conc.
Sungei Kinta.—32¾ tons.
Taiping.—16 tons tin conc.
Tambah.—9 tons tin conc.
Tanjong.—108 tons.
Tongkah Harbour.—55½ tons tin conc.

NIGERIA

Amalgamated Tin.—468 tons tin conc., 30 tons columbite.
Bisichi.—36 tons tin, 8 tons columbite.
Ex-Lands Nigeria.—48 tons tin conc.
Gold and Base Metals.—52 tons tin conc.
Filani.—7½ tons.
Jantar Nigeria.—24 tons tin, 19 tons columbite.
Jos Tin.—16 tons conc.
Kaduna Prop.—8½ tons tin.
Kaduna Synd.—30 tons tin.
Keffi.—31 tons tin conc.
Naraguta Extended.—7 tons.
Naraguta Karama.—21 tons.
Naraguta Tin.—18½ tons tin, 4 tons columbite.
Ribon Valley.—8 tons tin conc.
Rukuba.—2¼ tons.
South Bukeru.—2½ tons.
Tin Fields of Nigeria.—2¾ tons.
United Tin Areas.—14 tons tin conc.

MISCELLANEOUS

Bangrin.—109 tons.
Beralt Tin.—197 tons wolfram conc.; 2 tons tin conc.
Geevor.—60 tons black tin (65 per cent Sn.).
Kamra.—26 tons tin conc.
South Crofty.—26 tons black tin; 0.65 tons wolfram.
Siamese.—145 tons.
Zaaiplaats Tin.—Profit before taxation, £9,797.

Coal & Miscellaneous Base Metals

Amal. Collieries.—578,385 tons coal.
Apex Mines.—80,152 tons coal.
Blesbok.—40,065 tons coal.
Broken Hill South.—(19 Aug. - 15 Sept.), 19,004 tons ore (assaying 9.6 per cent. lead, 12 per cent. zinc and 2.4 oz. silver) yielded 2,251 tons lead conc. and 4,063 tons zinc conc.
Dundee Coal.—37,695 tons coal.
Rhodesia Broken Hill.—1,870 tons zinc and 1,200 tons lead, and 20 tons fused vanadium.
South African Coal Estates.—131,555 tons coal.
Springbok Colliery.—63,487 tons coal.
Vryheid Coronation.—45,488 tons coal and 12,371 tons coke.
Wankie Colliery.—196,421 tons coal sales and 8,560 tons coke sales.
Mount Isa.—48,710 tons yielded 3,080 tons lead-silver bullion assaying 79 oz. silver per ton and 4,055 tons zinc conc.

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